

SHARP®

Version 2.2
Produced in Oct. 1997

SHARP Programmable Controller New Satellite W series

Model Name

Network module

JW-20CM

Remote I/O slave module

JW-20RS

User's Manual

Thank you for purchasing the network module (JW-20CM), remote I/O slave module (JW-20RS) for the SHARP programmable controller.

Read this manual thoroughly to completely familiarize yourself with the operation according to the examples.

Besides this manual, the manuals of control module, support tool, and option module are available for the respective programmable controller.

We ask you to also read these manuals as well as this manual.

Keep this manual for future reference. We are confident that this manual will be helpful whenever you encounter a problem.

Note

★ This manual describes the JW-20CM, JW-20RS with **[30Hn]** mark in front of the module. The following functions are added for the JW-20CM and JW-20RS without [30Hn] marks.

① This module can be communicated with JW30H.

② For data link, available for use the following functions.

- Data link (memory capacity save function)
- Data memory start system for SEND/RECEIVE function.

In this manual, additional functions are represented by the **[V5]** mark.

★ In this manual, programmable controller is referred to as "PC."

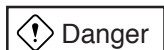
★ In this manual, programmable controllers and I/O modules with model name "ZW-xx" are referred to as "ZW model," and programmable controllers and I/O modules with model name "JW-xx" are referred to as "JW model."

Note

- This manual is written with the utmost care.
- No part of this manual may be reproduced in any form without permission of SHARP corporation.
- The contents of this manual are subject to change without prior notice.

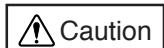
Safety Precautions

Read this manual and attached documents carefully before installation, operation, maintenance and checking in order to use the machine correctly. Understand all of the machine knowledge, safety information, and cautions before starting to use. In this instruction manual, safety precautions are ranked into "danger" and "caution" as follows.




Danger

: Wrong handling may possibly lead to death or heavy injury.



Caution

: Wrong handling may possibly lead to medium or light injury.

Even in the case of  **Caution**, a serious result may be experienced depending on the circumstances. Anyway, important points are mentioned. Be sure to observe them strictly.

The picture signs of prohibit and compel are explained below.



: It means don'ts. For example, prohibition of disassembly is indicated as ().



: It means a must. For example, obligation of grounding is indicated as ().

1) Installation

Caution

- Use in the environments specified in the catalog, instruction manual, and user's manual. Electric shock, fire or malfunction may be caused when used in the environments of high temperature, high humidity, dusty or corrosive atmosphere, vibration or impact.
- Install according to the manual. Wrong installation may cause drop, breakdown, or malfunction.
- Never admit wire chips or foreign matters. Or fire, breakdown or malfunction may be caused.

2) Wiring

Compel

- Be sure to ground. Unless grounded, electric shock or malfunction may be caused.

Caution

- Connect the rated power source. Connection of a wrong power source may cause a fire.
- Wiring should be done by a qualified electrician. Wrong wiring may lead to fire, breakdown or electric shock.

3) Use

 **Danger**

- Don't touch the terminal while the power is being supplied or you may have an electric shock.
- Assemble the emergency stop circuit and interlock circuit outside of the programmable controller. Otherwise breakdown or accident damage of the machine may be caused by the trouble of the programmable controller.

 **Caution**

- "RUN" or "STOP" during operation should be done with particular care by confirming safety. Misoperation may lead to damage or accident of the machine.
- Turn on the power source in the specified sequence. Turning ON with wrong sequence may lead to machine breakdown or accident.

4) Maintenance

 **Prohibit**

- Don't disassemble or modify the modules.
Or fire, breakdown or malfunction may be caused.

 **Caution**

- Turn OFF the power source before detaching or attaching the module.
Or electric shock, malfunction or breakdown may be caused.

■ Configuration of this manual

The network module JW-20CM has three functions: "remote I/O," "data link," and "computer link" functions. Accordingly, this manual describes about these three functions. Read each section according to your use of any of these functions.

Users who use the network module for the first time.

Read this manual from chapter 1.

First, thoroughly understanding general, precautions, name and function of each section. Then, read the contents from chapter 5 for proper use.

Users who want to use the remote I/O function.

Read from chapter 1 to chapter 7 and properly install and connect wiring work of the module. Then set switches and parameters by referring chapter 8 for correct use.

Switch setting

- Master module: JW-20CM See page 8·9
- Slave module: JW-20RS See page 8·14

Parameter setting

- Master module: JW-20CM See page 8·19
- Slave module: JW-20RS See page 8·30

Users who want to use the data link function (including the computer link function)

Read from chapter 1 to chapter 7 and properly install and connect wiring work of the module. Then set switches and parameters by referring chapter 9 for correct use.

The module also can function the computer link as data link system with a host computer having a network module: ZW-98CM/ZW-20AX.

Switch setting

- Master module See page 9·17
- Slave module See page 9·17

Parameter setting

- Master module See page 9·22
- Slave module See page 9·33

Users who want to use only the computer link function

Read from chapter 1 to chapter 7 and properly install and connect wiring work of the module. Then set switches by referring chapter 10 for correct use.

Switch setting See page 10·3

Users who want to save and load parameter contents using a support tool.

Carefully read the contents of chapter 11 for correct use.

Users who want to add a communication station.

Carefully read the contents of chapter 7 and add a station.

Network module JW-20CM

Remote I/O slave module JW-20RS

- User's Manual -

Chapter 1. Outline

Chapter 2. Safety Precautions

Chapter 3. System Configuration

Chapter 4. Name and Function of Each Part

Chapter 5. Installation

Chapter 6. Processing of Cables

Chapter 7. Wiring

Chapter 8. Remote I/O

Chapter 9. Data Link

Chapter 10. Computer Link

Chapter 11. Support Tools

Chapter 12. Specifications

Chapter 13. Appendix

Table of contents

| | |
|---|-------------|
| Chapter 1 Outline | 1-1 |
| Chapter 2 Safety Precautions | 2-1 |
| 2-1 Installation 2-1 | |
| 2-2 Wiring 2-1 | |
| 2-3 Treatment 2-3 | |
| 2-4 Static electricity 2-3 | |
| 2-5 Maintenance 2-3 | |
| Chapter 3 System Configuration | 3-1 |
| Chapter 4 Name and Function of Each Part | 4-1 |
| 4-1 JW-20CM 4-1 | |
| 4-2 JW-20RS 4-3 | |
| Chapter 5 Installation | 5-1 |
| 5-1 JW-20CM 5-1 | |
| 5-2 JW-20RS 5-4 | |
| Chapter 6 Processing of Cables | 6-1 |
| 6-1 Processing cable end 6-2 | |
| 6-2 Connector crimping procedure 6-5 | |
| Chapter 7 Wiring | 7-1 |
| 7-1 Cable trunk and branch lines 7-1 | |
| 7-2 Relaying of trunk cables 7-1 | |
| 7-3 Cable wiring procedure in control panel 7-2 | |
| 7-4 Waterproof and insulation processing of connectors 7-4 | |
| 7-5 Wiring of cables at outside control panels 7-5 | |
| 7-6 Check after wiring 7-5 | |
| 7-7 Wiring method for adding a communication station 7-6 | |
| 7-8 Wiring to power supply module 7-8 | |
| Chapter 8 Remote I/O | 8-1 |
| 8-1 Description of remote I/O 8-1 | |
| 8-2 Data transfer required time and communication timing 8-3 | |
| 8-3 Outline of switch and parameter setting procedure 8-8 | |
| 8-4 Error and treatment 8-46 | |
| Chapter 9 Data Link | 9-1 |
| 9-1 Description for data link function 9-1 | |
| 9-2 Communication method 9-2 | |
| 9-3 Data transfer required time and communication delay time 9-12 | |
| 9-4 Expansion of network 9-15 | |
| 9-5 Switch setting of master station or slave station 9-17 | |
| 9-6 Setting contents of slave station parameters 9-22 | |
| 9-7 Setting contents of master station parameters 9-33 | |
| 9-8 Error and treatment 9-53 | |
| Chapter 10 Computer link | 10-1 |
| 10-1 Description for computer link 10-1 | |
| 10-2 Computer link function 10-2 | |
| 10-3 Switch setting 10-3 | |
| 10-4 Command 10-4 | |

| | |
|---|-------------|
| Chapter 11 Support Tools | 11·1 |
| 11-1 Record and load by ladder software (JW-50SP) | 11·1 |
| 11-2 Remote function | 11·5 |
| Chapter 12 Specifications | 12·1 |
| 12-1 JW-20CM | 12·1 |
| 12-2 JW-20RS | 12·4 |
| Chapter 13 Appendix | 13·1 |
| 13-1 Maintenance and check | 13·1 |
| 13-2 Switch setting table | 13·2 |
| 13-3 Parameter memory table | 13·3 |
| 13-4 Address map of data memory | 13·20 |
| 13-5 Instructions used with the F200 and F201 link function | 13·22 |
| 13-6 Application instruction using instruction system | 13·26 |

Chapter 1 Outline

Using network module JW-20CM, you can construct a communications system (satellite net) which can easily send and receive an ON/OFF signal (machine information) and numerical data (production data) between PCs and a host computer using equipment control.

Using remote I/O slave module JW-20RS, you can construct a remote I/O system as master station for PC that installed JW-20CM.

PCs which can use JW-20CM and JW-20RS are W70H/100H, JW50/70/100, and JW50H/70H/100H.

① Data link/computer link function

This function enables to send and receive ON/OFF signals and numeric data between modules on a network (satellite net) which is connected PCs and personal computers having network module ZW-20CM/JW-20CM/JW-22CM, network module ZW-98CM/ZW-20AX, and satellite net board Z-335J.

② Remote I/O function

If remote I/O slave module ZW-20RS/JW-20RS are mounted on I/O modules located separately, one PC having a network module JW-20CM can control these slave modules. (Connectable maximum 63 modules of slave stations.)

- In the remote I/O function, the remote I/O can choose either of synchronous or asynchronous for sending and receiving data with slave stations.

Synchronous type: Slave station scans input/output operation one time for each operation of the PC.

Asynchronous type: When PC's operation time is longer than data transfer required time of the remote I/O, the slave station scans input/output operation one time for each operation of the PC. When PC's operation time is shorter than the data transfer required time of the remote I/O, the slave station operate input and output one time for several operation of the PC.

③ Remote programming/remote monitor function

By constructing a satellite system using the JW-20CM, you can program and monitor other station's PC's (master station's PC in case that remote I/O function) on the satellite system using a support tool.

- These remote programming and remote monitor functions are also available beyond one hierarchical layer difference (satellite net ↔ satellite net, satellite net ↔ SUMINET-3200).

* "SUMINET-3200" is a trademark of Sumitomo Electric Industries, Ltd.

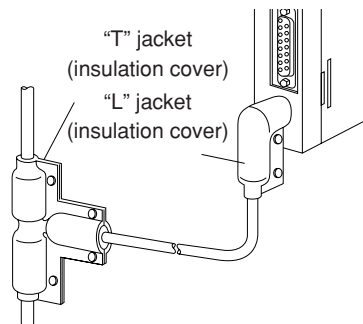
Chapter 2 Safety Precautions

2-1 Installation

- Do not install or store the JW-20CM in the following conditions.
 - Direct sunlight
 - Ambient temperature exceeding the range of 0 to 55 °C (Storage temperature : -20 to 70 °C)
 - The relative humidity exceeding the range of 35 to 90%.
 - Sudden temperature changes which may cause condensation.
 - Corrosive or inflammable gas
 - Vibration or hard jolts
- Prior to installing or detaching the JW-20CM, make sure to turn OFF the power supply to the PCs.
- All screws must be tightened firmly.

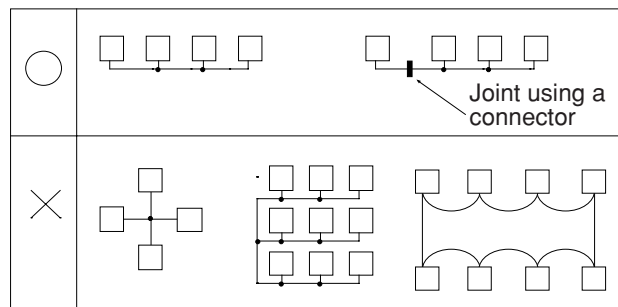
2-2 Wiring

- Make sure to use only the recommended types (see page 6 · 1) for cables, connectors, and crimping tools.
- When using connectors for branch or joint lines, provide jackets to protect connectors.
(When a connector touches with an external enclosure or the like, a communication error may occur.)

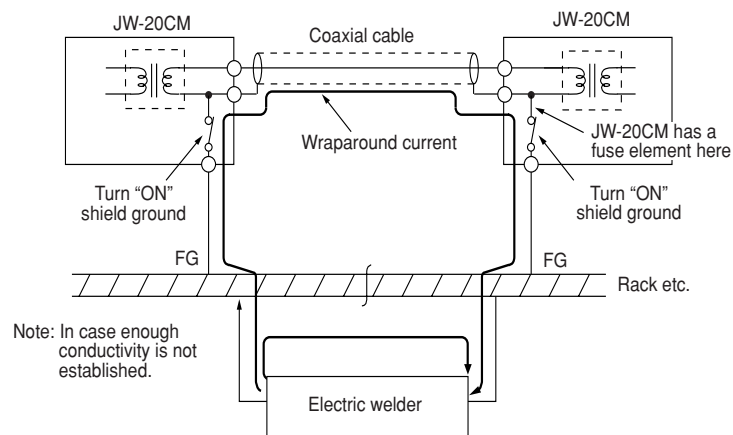


- Do not connect the ground terminal of the power supply module together with other equipment's ground lines. Make sure to provide class-3 grounding.
When the JW-20CM is used without connecting a class-3 grounding, malfunctions by noise may occur.
- Communication cables should be arranged as far from any high voltage lines and strong power lines as possible. Do not lay the communication cable parallel or proximate to these lines.

- Communication cables should be laid from the master station to the slave station one by one. Multiple wiring from one point or wiring without terminators may cause communication errors.



- Arrange total cable length within 1 km.
- Arrange branch cable line from a trunk within 400 mm.
- Prior to any electric welding around the JW-20CM, take out the coaxial cable from the JW-20CM. While the coaxial cable is connected to the JW-20CM, any electric welding nearby the JW-20CM will cause the welding current to enter the JW-20CM and may damage part of its circuit pattern.



2-3 Treatment

- For ventilation, holes are provided in the cabinet to prevent a temperature rise. Do not block the ventilation holes. Good ventilation is necessary.
- Never allow a liquid such as water and chemical solution and a metallic object like a copper wire inside the JW-20CM to avoid a possible hazard. Otherwise, it may be a cause of machine trouble.
- When a trouble or abnormal condition such as overheat, fume, or smoke is met, stop the operation immediately, and call your dealer or our service department.

2-4 Static electricity

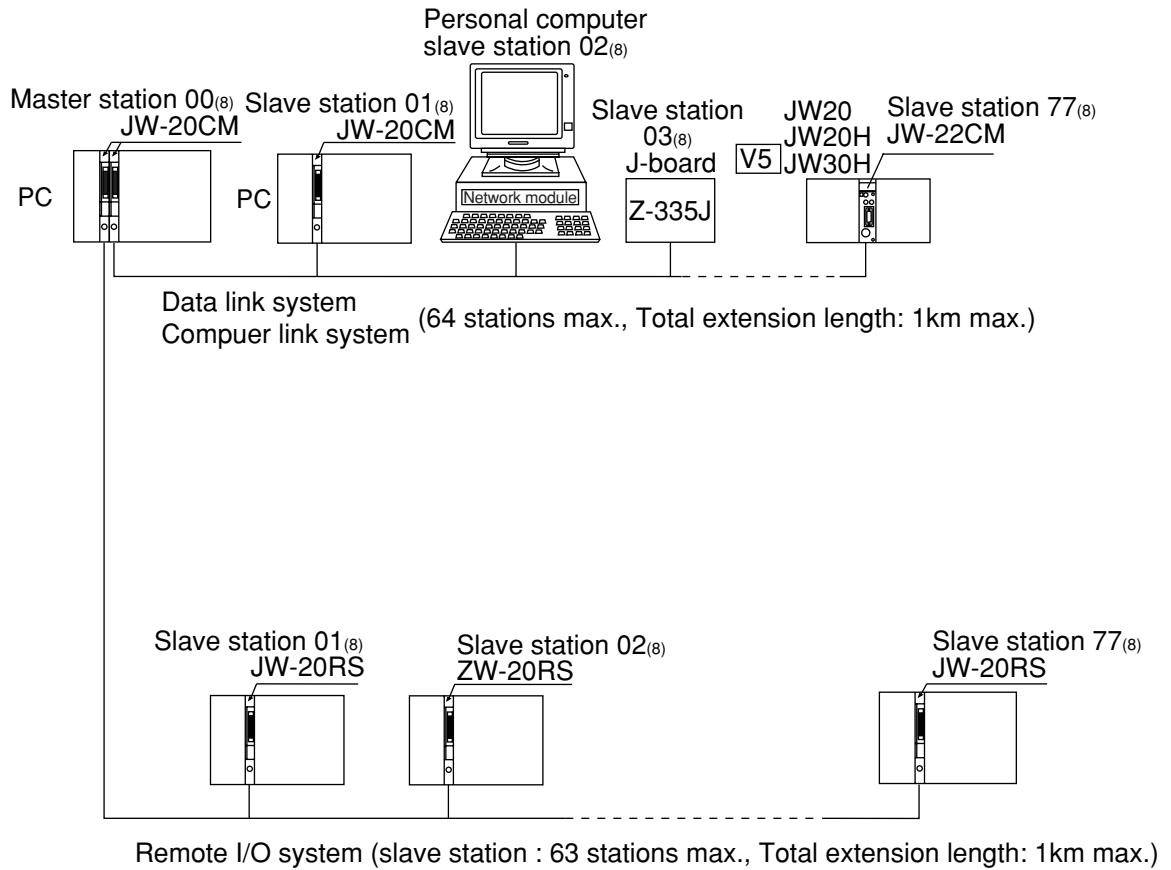
In extremely dry circumstances, the human body may have excessive static current. This excessive static current may damage parts in the JW-20CM's PC board. Therefore, prior to accessing the JW-20CM, touch your hand to a grounded piece of metal to discharge the static current in your body.

2-5 Maintenance

Use a clean, dry cloth when cleaning the JW-20CM. Do not use volatile chemicals such as thinner or alcohol as it may result in deformation and color fading.

Chapter 3 System Configuration

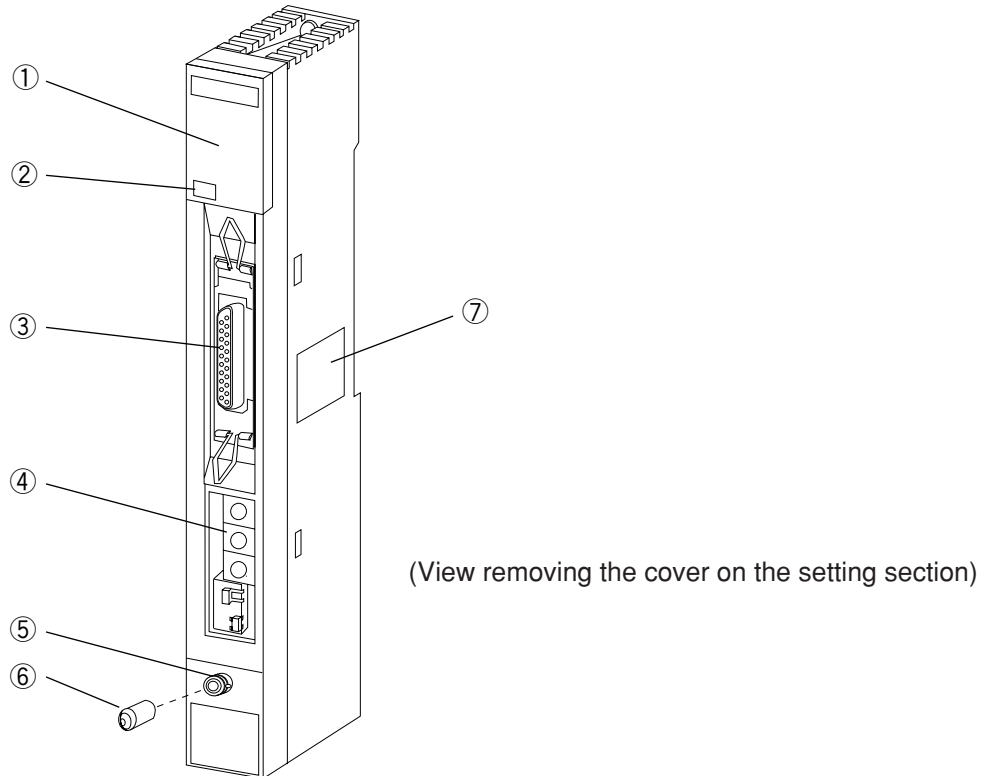
(Example of system configuration)



“PC” indicates W70H/100H, JW50/70/100, and JW50H/70H/100H.

Chapter 4 Name and Function of Each Part

4-1 JW-20CM



① Indication lamps

Lamps light ON/OFF indicates operation condition.

| JW-20CM | |
|-------------|------|
| COMM | ○ S0 |
| SD | ○ S1 |
| RD | ○ S2 |
| CD | ○ S3 |
| LT | ○ S4 |
| TEST | ○ S5 |
| ERROR | ○ S6 |
| FAULT | ○ S7 |
| 30Hn | |

| Name | Operation |
|----------|---|
| COMM | Lights during communicating |
| SD | Lights when data sending |
| RD | Lights when data receiving |
| CD | Lights when detecting carrier |
| LT | Lights when turning "ON" the termination resistance |
| TEST | Lights during testing |
| ERROR | Lights at a communication error |
| FAULT | Lights at time up of the watchdog timer |
| S0 to S7 | Lights error code when error occurs. |

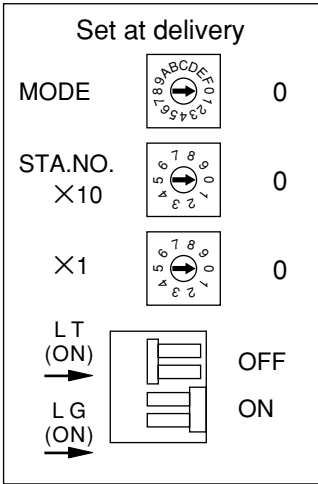
② 30Hn mark (Applied to JW30H)

JW-20CMs having **30Hn** mark can communicate with JW30H.

JW-20CMs having **30H** can communicate with conventional modules of JW30H (JW-31CUH/32CUH/33CUH). However, when they will communicate with new modules of JW30H (JW-31CUH1/32CUH1/33CUH1/33CUH2/33CUH3), they recognizes these new modules as conventional modules.

- ③ **Support tool connection connector**
Connect a support tool and set parameter etc.

- ④ **Setting switch**
Set functions of JW-20CM.



· **MODE switch Select functions**

| Number | Function |
|--------|---|
| 0 | Set at delivery |
| 1 | Remote I/O |
| 2 | Data link (standard function) |
| | Computer link |
| 3 | Data link (memory capacity save function) |
| | Computer link |
| 4 to F | Do not set. |

· **STA . NO.**
X 10, X 1 Set station number

· **LT** Set ON/OFF of termination resistance

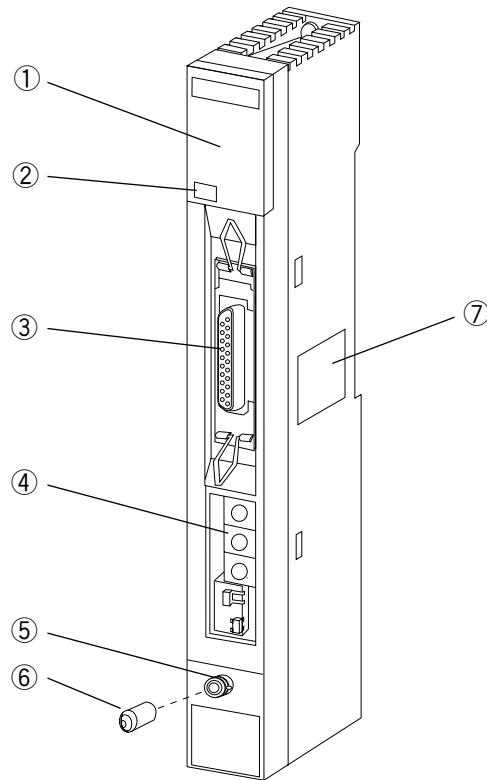
· **LG** Set shield ground ON/OFF of communication cable

- ⑤ **Communication cable connection connector**
BNC type receptacle (jack)

- ⑥ **Connector protective cap**

- ⑦ **Rating plate**

4-2 JW-20RS



① Indication lamps

Lamps light ON/OFF indicates operation condition.

| JW-20RS | |
|-------------|------|
| COMM | ○ S0 |
| SD | ○ S1 |
| RD | ○ S2 |
| CD | ○ S3 |
| LT | ○ S4 |
| TEST | ○ S5 |
| ERROR | ○ S6 |
| FAULT | ○ S7 |
| 30Hn | |

| Name | Operation |
|----------|---|
| COMM | Lights during communicating |
| SD | Lights when data sending |
| RD | Lights when data receiving |
| CD | Lights when detecting carrier |
| LT | Lights when turning "ON" the termination resistance |
| TEST | Lights during testing |
| ERROR | Lights at a communication error |
| FAULT | Lights at time up of the watchdog timer |
| S0 to S7 | Indicates error code. |

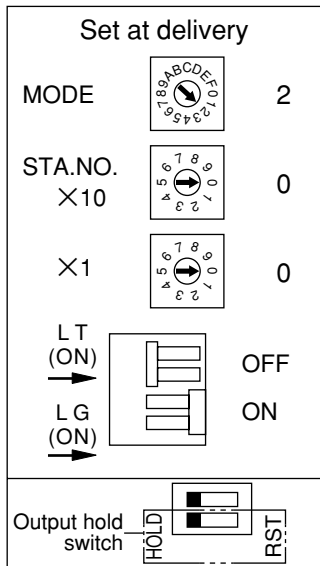
② 30Hn mark (Applied to JW30H)

JW-20RSs having **30Hn** mark can communicate with JW30H.

JW-20RSs having **30H** can communicate with conventional modules of JW30H (JW-31CUH/32CUH/33CUH). However, when they will communicate with new modules of JW30H (JW-31CUH1/32CUH1/33CUH1/33CUH2/33CUH3), they recognizes these new modules as conventional modules.

- ③ **Support tool connection connector**
Connect a support tool and set parameter etc.

- ④ **Setting switch**
Set functions of JW-20RS.



· **MODE switch Select functions**

| Number | Function |
|--------|---------------------|
| 0 | Do not set. |
| 1 | Remote I/O (ZW-I/O) |
| 2 | Remote I/O (JW-I/O) |
| 3 to F | Do not set. |

· **STA . NO.**
X 10, X 1 Set station number

· **L T Set ON/OFF of termination resistance**

· **L G Set shield ground ON/OFF of communication cable**

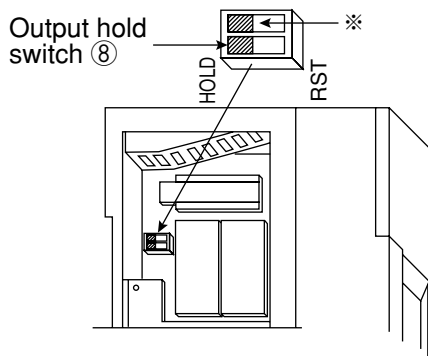
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- ⑤ **Communication cable connection connector**
BNC type receptacle (jack)

- ⑥ **Connector protective cap**

- ⑦ **Rating plate**

- ⑧ **Output hold switch**
Set the status of the output module when the JW-20RS stops operation.



- **In case of using ZW-I/O**
HOLD: Holds operation condition
RST: All points is OFF
- **In case of using JW-I/O**
Be sure to setting at HOLD.

Keep the switch marked with * as the setting at delivery (condition in the figure above).

Chapter 5 Installation

5-1 JW-20CM

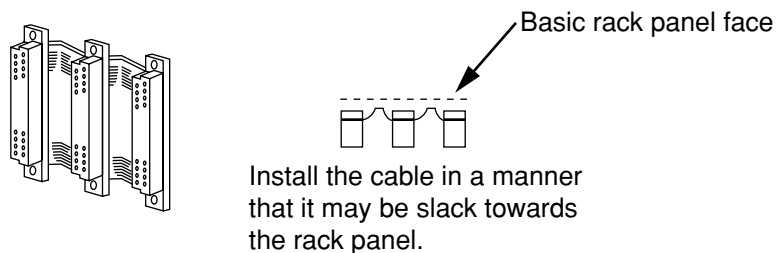
(1) Installation of cable for option module

Install the optional cable on the basic rack panel that installed JW-20CM.

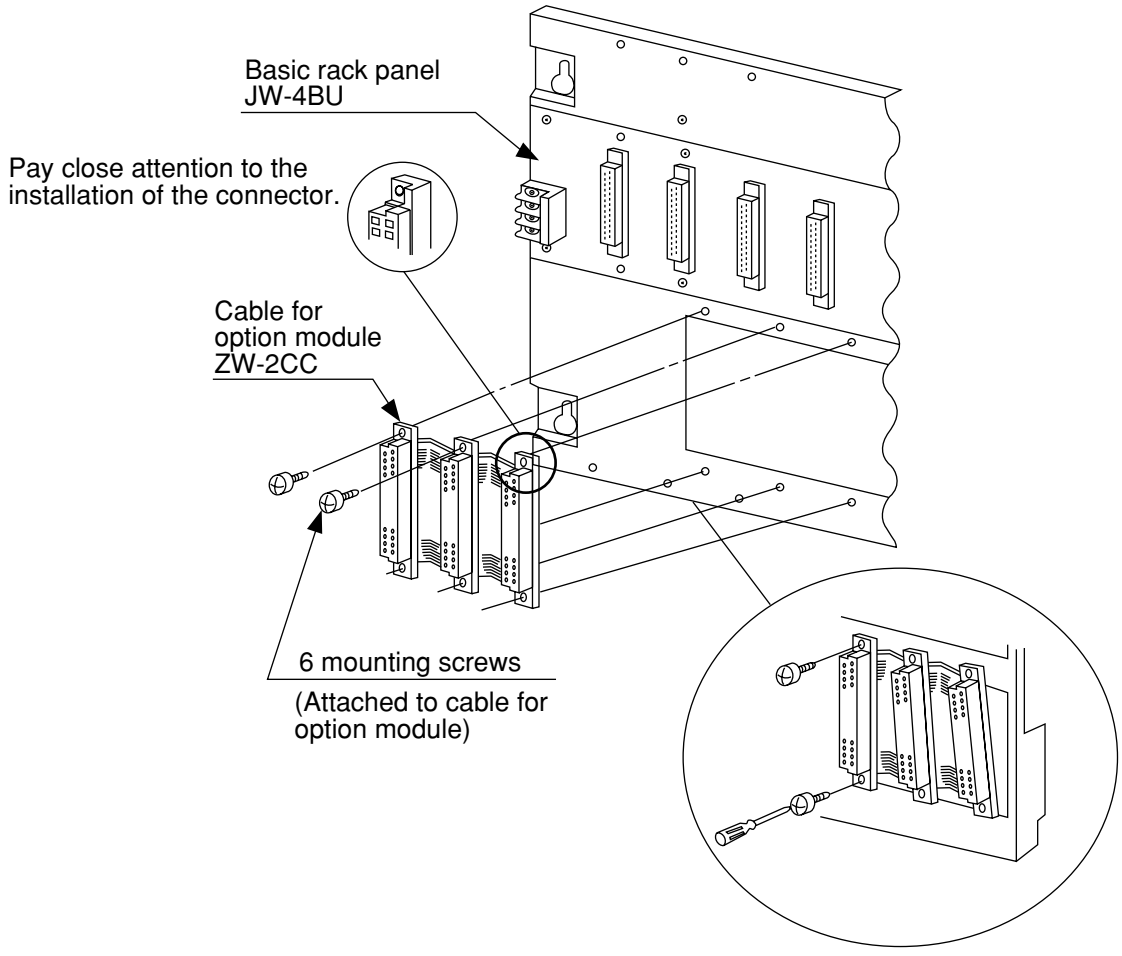
| PC module name | | Basic rack panel model name | Cable for option module | Available for using I/O |
|----------------|--------|-----------------------------|-------------------------|-------------------------|
| ZW model | W70H | ZW-28KB | ZW-2CC | I/O module of ZW model |
| | W100H | ZW-46KB | ZW-2CC/4CC | |
| JW model | JW50 | ZW-28KB | ZW-2CC | I/O module of JW model |
| | JW70 | ZW-46KB | ZW-2CC/4CC | |
| | JW100 | JW-4BU | ZW-2CC | |
| | JW50H | JW-6BU | ZW-2CC/4CC | |
| | JW70H | JW-8BU | ZW-2CC/4CC/6CC | |
| | JW100H | JW-13BU | ZW-2CC/4CC/6CC | |

In case that install a basic rack panel JW-4BU to ZW-2CC

- ① Bend the optional cable



② Attach the connectors in the optional cable one after another, starting from the left side.



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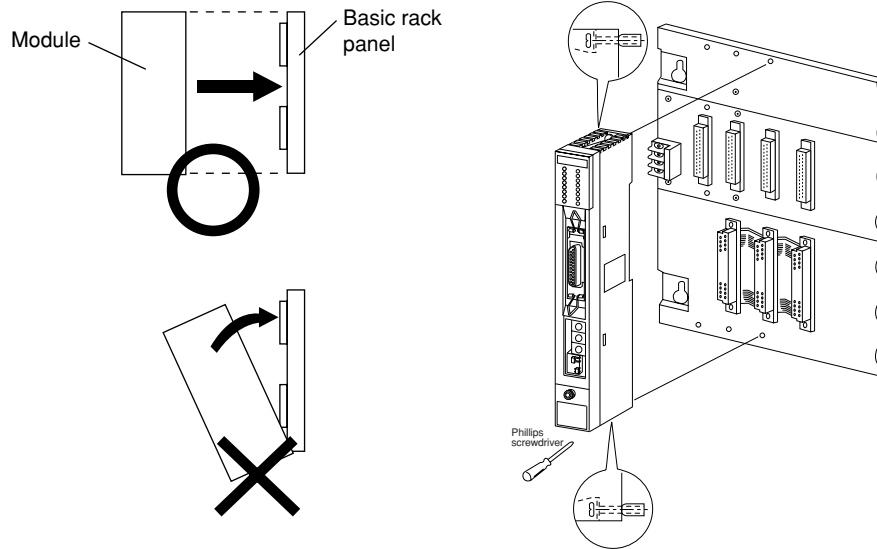
(2) Installation of JW-20CM

Attach the basic rack panel using the two attachment screws.

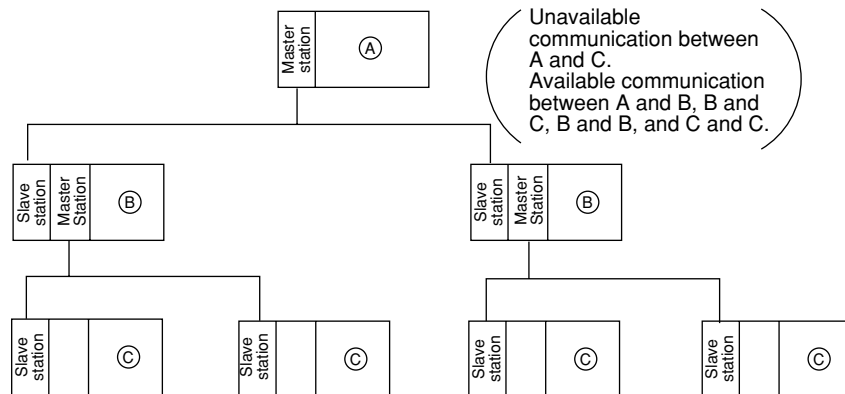
Before installation or removal, make sure to shut OFF the power supply to the PC.

(Example) Install on basic rack panel JW-4BU

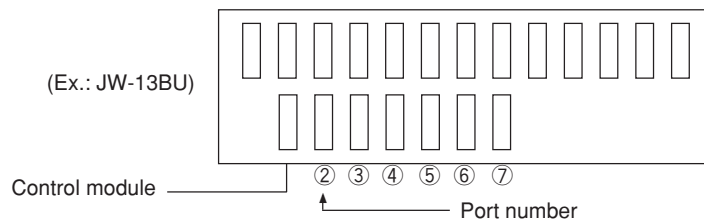
- This module can be inserted into any one of the optional slots.
- Be careful not to bend the connector pins on the module by applying too much force to them.



- More than one module of JW-20CM can be installed on one basic rack panel. However, they cannot communicate by crossing-over another network.



- Optional slots have each port numbers. When an error occurs, the JW-20CM stores the port number corresponding to the error occurred module into system memory #050 in the PC. This is applied only error code 53: Optional error.



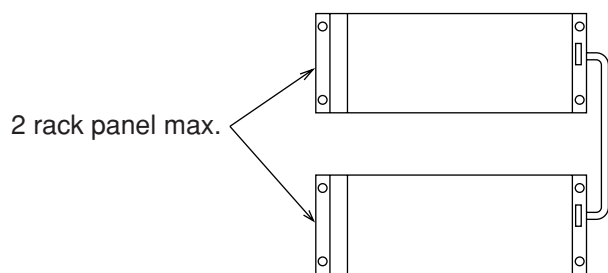
5-2 JW-20RS

Choose type of basic rack panel of the remote I/O slave module (JW-20RS) considering kinds and number of I/O modules to be installed.

| Kinds of I/O modules | Rack panel model name |
|------------------------|--------------------------|
| I/O module of ZW model | ZW-08BU (for 8 modules) |
| | ZW-04KB (for 4 modules) |
| | ZW-02KB (for 2 modules) |
| I/O module of JW model | JW-4BU (for 4 modules) |
| | JW-6BU (for 6 modules) |
| | JW-8BU (for 8 modules) |
| | JW-13BU (for 13 modules) |

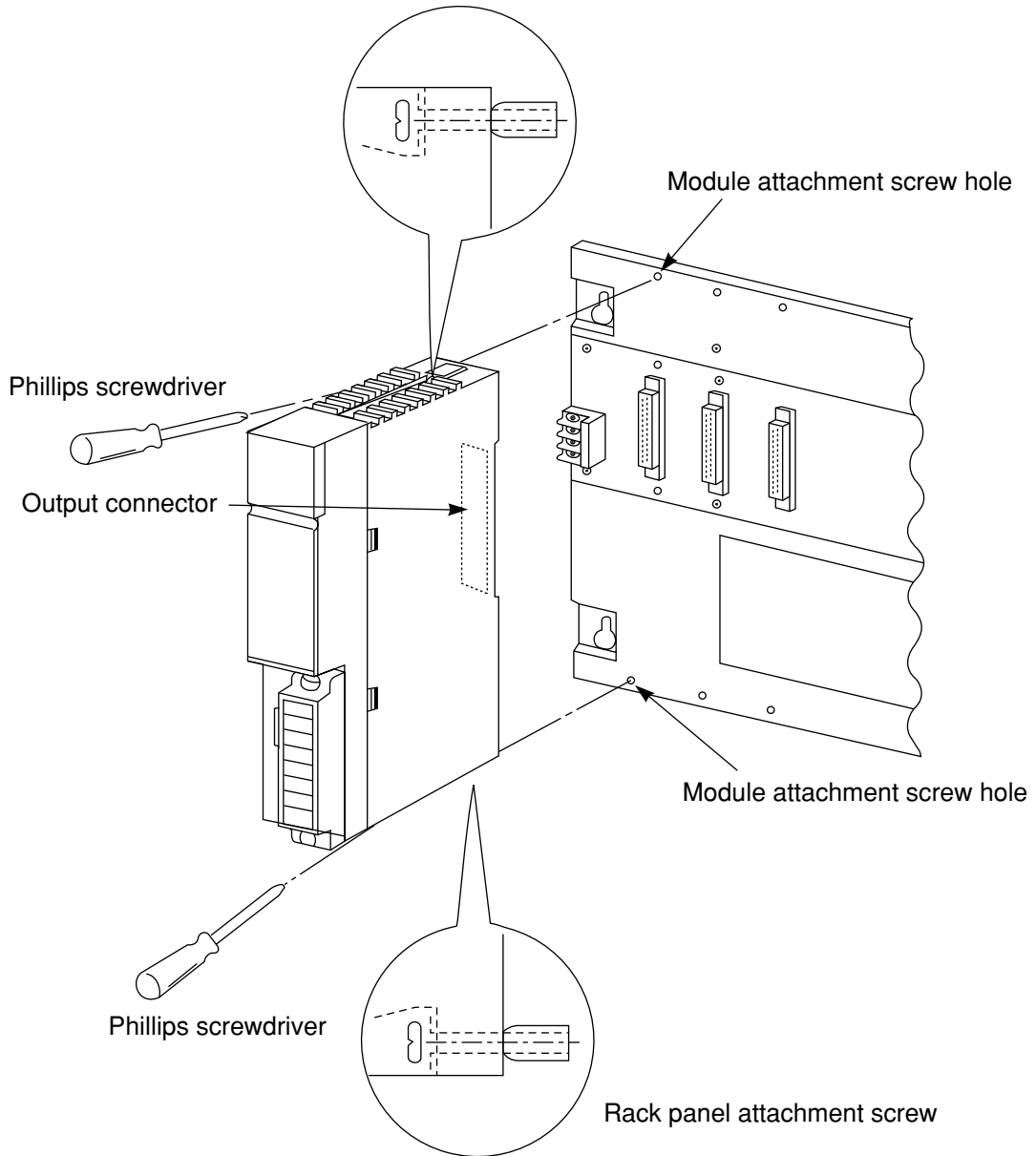
When I/O modules for JW model are used, maximum two modules of basic rack panel can be connected per one remote I/O slave module. However, I/O bus expansion adapter (JW-1EA/JW-2EA) cannot be used.

5



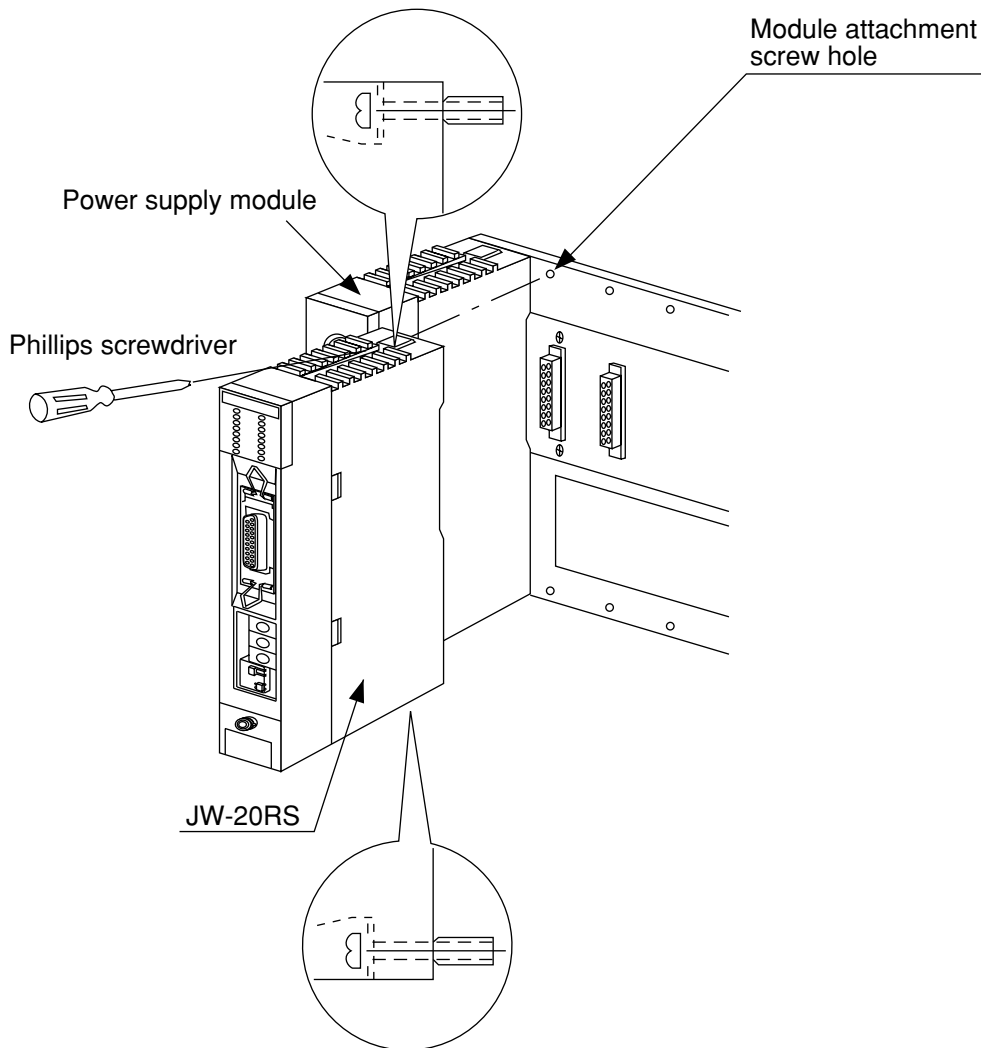
(1) Installation of power supply module

Attach the end left of rack panel using the two module attachment screws.



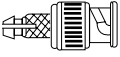
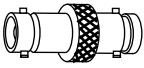



(2) Installation of JW-20RS

Install the JW-20RS in the second slot from the left end using the two module attachment screws. Before installation or removal, make sure to shut OFF the power supply to the PC.



Chapter 6 Processing of Cables

Make sure to use the recommended models shown below for cables and connectors.

| Name | | Model | Maker |
|---|--|---|---|
| Cable | High frequency coaxial cable | ME-5C-2V | Mitsubishi Cable Industries,. Ltd. Fujikura Cable,. Ltd. Furukawa Denko Corporation Chugoku Cable,. Ltd. Shinagawa Cable,. Ltd. |
| Crimping tools | | ME-42H Dice: 67-42H | Toko Denshi Corporation |
| Stripper for high frequency coaxial cable | | CST-TM (The system consists of the main body, a blade cassette, and a blade setting gauge) | Nihon Weidmüller Co., Ltd. |
| Jacket | “L” jacket | SB-2878 | Shinagawa Shoko Co., Ltd. |
| | “T” jacket | SB-2879 | |
| Insulation tape | Self-adhesive tape | NO.11 | Nitto Denko Corporation |
| Connectors | Connector  | ME-GP-01 | Toko Denshi Corporation DDK Ltd. |
| | Straight  | ME-JJ-01 | |
| | Elbow  | ME-LA-01 | |
| | T's  | ME-TA-01 | |
| | Termination  | ME-75 | |

6-1 Processing cable end

① Applicable cable

High frequency coaxial cable: ME-5C-2V

② Required tools

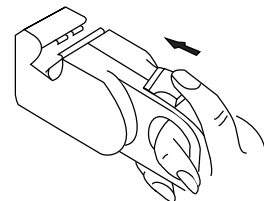
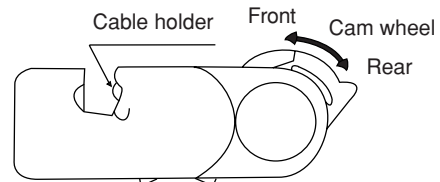
Stripper for high frequency coaxial cable: CST-TM

③ Processing procedure

<Basic operation>

Move the cam wheel of the stripper (amber colored ring) back and forth and the cable holder moves back and forth accordingly. Confirm this movement of the stripper first.

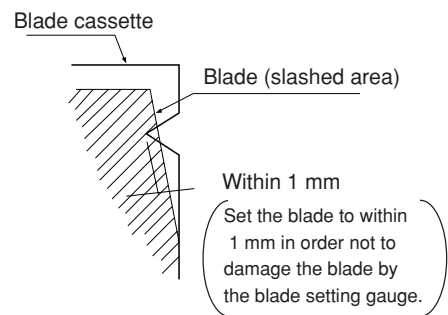
To hold the stripper, put your forefinger through the hole and move the cam while pushing back and forth with your thumb.



<Pressure setting>

Set the operation range of the cable holder by moving the slider at the bottom of the body. Move to the left to increase pressure.

In this example, set the slider to the cam wheel side's end (right side) to set the pressure to low.

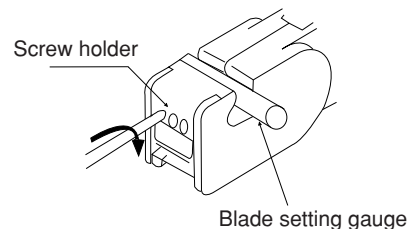
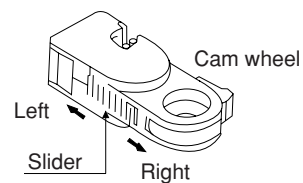


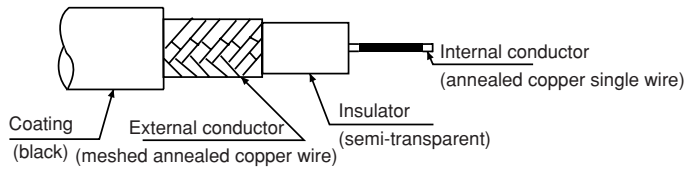
<Adjustment of blade cutting depth>

Adjust the cutting depth of the blade by turning the two screws at both ends of the screw holder. Set the blade position to within 1 mm from the cutting surface of the blade cassette prior to adjusting the cutting depth. For the cutting depth adjustment, use the "blade setting gauge" supplied as an accessory and match the blade position with the caved position of the gauge. Then move the cam wheel forward and secure firmly. Turn right lightly both adjustment screws at either end of the screw holder for adjustment. (Be careful not to break the blade setting gauge as it is made of aluminum.)

(Fine adjustment is required to get the optimum cutting depth.)

To the next page

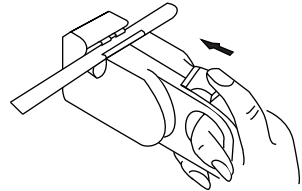




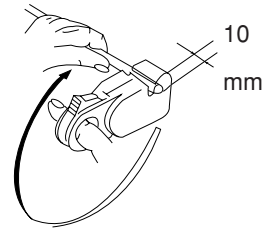
From the previous page

<Cutting of coating, external conductor, and insulator>

Put a coaxial cable while remaining approximately 10 mm into the cable stripper and securely tighten the cable with the middle finger, ring finger, and little finger of your left hand in order to hold stable during turning the stripper. Put your right hand forefinger into the cam wheel and execute the procedure in order from step 1 below.

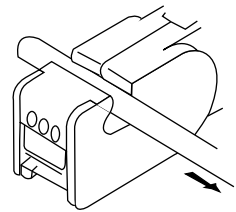


- Step 1** Press the cam wheel forward 3 times and turn the stripper in the direction of arrow 2 to 3 times.
- Step 2** Press the cam wheel forward 1 time and then turn the stripper in the direction of arrow a further 2 to 3 times.
- Step 3** Press the cam wheel forward 1 more time and turn the stripper in the direction of the arrow another 2 to 3 times.



<Removal of coating, external conductor, and insulator>

While holding the coaxial cable with your left hand, grip the cable stripper so that it keeps a right angle against the coaxial cable, and press out the cable stripper with your left hand's thumb.

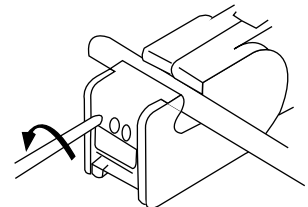


When the adjustment of the blade is not required

If the stripper cannot be removed smoothly, adjustment of the blade is not appropriate. In this case slide the cam wheel backward and remove the coaxial cable. Then adjust the blade.

<Fine adjustment of blade cutting depth>

When the cutting depth is too shallow or too deep, and damages the external conductor or the internal conductor, turn the screws on the screw holder and adjust the blade depth a little.

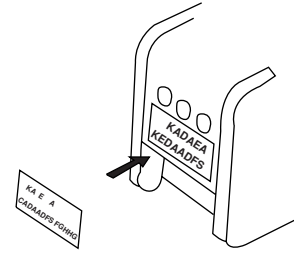


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From the previous page

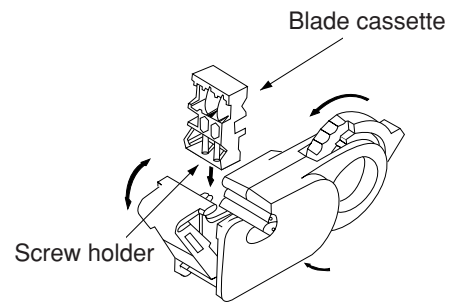
<Display of blade setting>

We recommend that in order to keep the adjusted position of the adjustment screws, after completion of adjustment for the coaxial cable and the screw holder, write the screw position etc. on a sticker and adhere it to the adjustment screws.



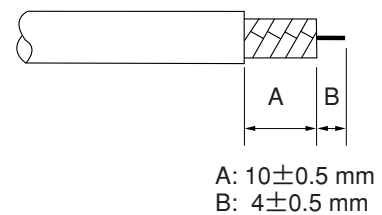
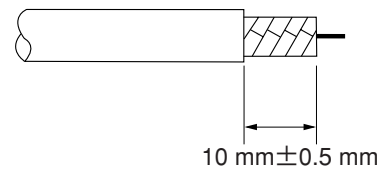
<Replacement of blades>

Hold up the upper section of the screw holder with a minus driver, and open the screw holder. Remove the blade cassette and reinsert by turning the current blade back side front or insert a new blade cassette from its top.



<Processing of cable end>

Cut the internal conductor of the coaxial cable, which is already cut by the stripper, using a nipper etc. to the optimum dimension of 4 mm.

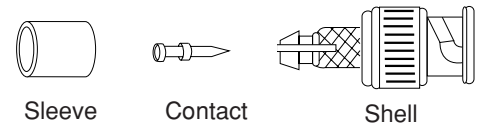


6-2 Connector crimping procedure

① Required tools: Hand-held crimping tool

Model : ME-42H
 Dice No. : 67-42H
 Crimping width : 10 mm

Connector parts

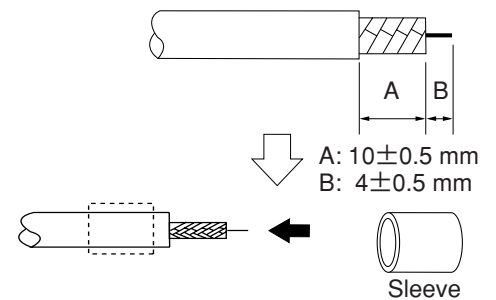


② Connector: ME-GP-01

③ Processing procedure

<Insert a sleeve>

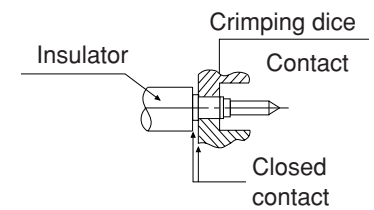
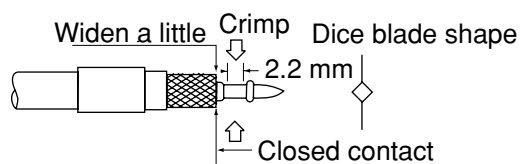
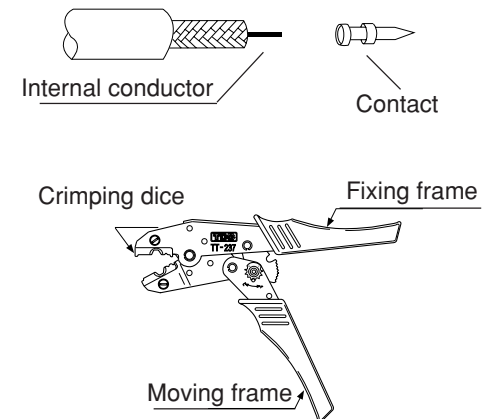
Put through a sleeve to an end-processed high frequency coaxial cable.



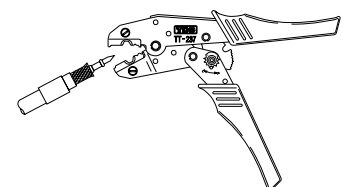
<Crimping contact>

Insert a contact into the internal conductor and crimp.

Put a contact into dice having a diamond shape and closely stick its end surface with the insulator and the dice. Pull the moving frame to the fixing frame side and crimp until the ratchet is removed.
(Crimping width: 2.2 mm)



* Use the crimping tool in the direction shown in the illustration right. Using the crimping tool in the reverse direction will not crimp correctly.

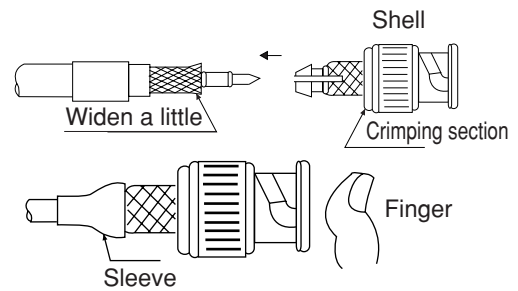


To the next page

From the previous page

<Fixing the connector>

Slightly widen the external conductor of the coaxial cable, which is crimped to a contact on the internal conductor, in order to smoothly enter the shell inside the external conductor. Press in the external conductor end of the coaxial cable to just before the crimping part of the shell and put the sleeve into the crimping section. Then press in the coaxial cable until a "click" sound can be heard. Confirm that the contact end point touches your finger cushion.

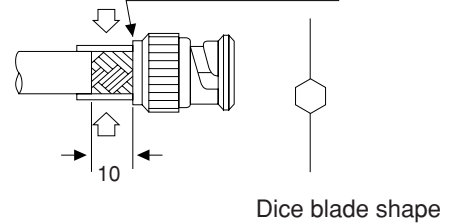


<Crimping external conductor>

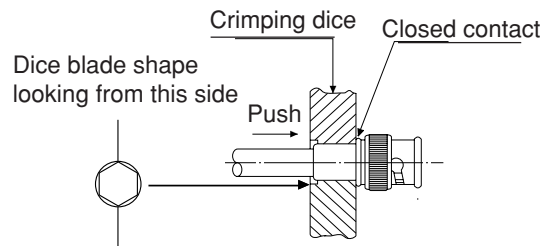
Crimp the external conductor.

Insert thoroughly the sleeve into the crimping section of the shell and crimp. Put the sleeve in the hexagonal dice and closely stick the shell to the crimping dice. Pull the moving frame to the fixing frame side while pressing the coaxial cable and shell from both sides, and crimp until the ratchet is removed. (Crimping width: 10 mm)

Completely put into the crimping section.



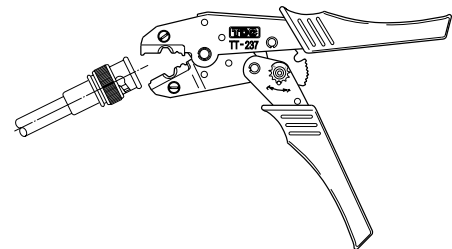
* Use the crimping tool in the direction shown in the illustration right. Using the crimping tool in the reverse direction will not crimp correctly.



<Insulation test>

Insulation test of shell and contact

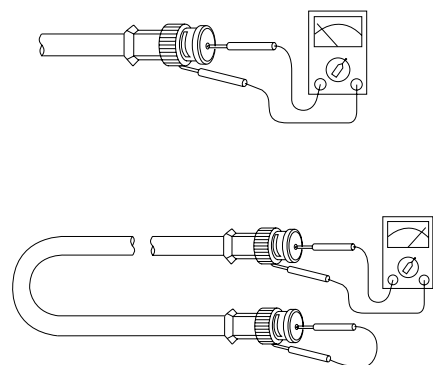
Using a tester, check the conductivity between the internal conductor and the external conductor in the connector. When the indication of the tester shows ∞ ohms, the insulation is appropriate.



<Conductivity test>

Conductivity test

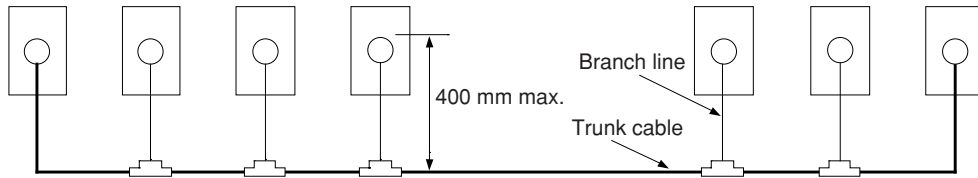
After short-circuiting the one end of the connector crimped to the coaxial cable, check that conductivity is attained.



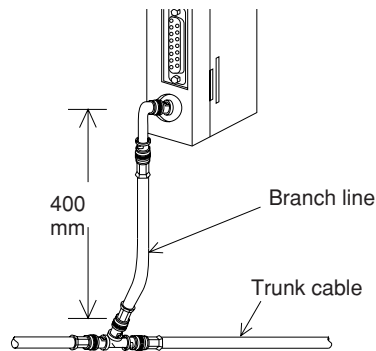
Chapter 7 Wiring

7-1 Cable trunk and branch lines

- ① On the illustration of the cable wiring below, a bold line means a trunk and the thin lines branched from the trunk with a "T" shape are called branch lines.



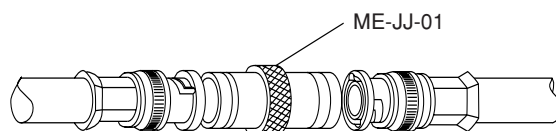
- ② The length of branch lines branched from the trunk should be within 400 mm.



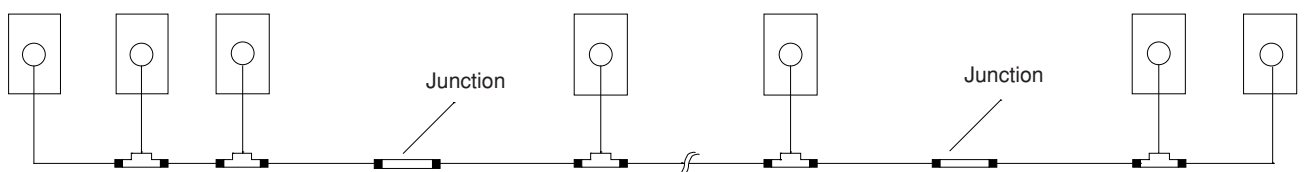
- ③ Total cable length should be within 1 km.

7-2 Relaying of trunk cables

- ① To relay trunk cables, use the straight joint (ME-JJ-01).



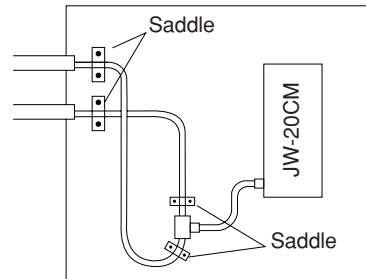
- ② Relaying of trunk cables should be limited to indispensable cases only. Inadvertent relaying of trunk cables may cause a communication fault such as a weakened signal level due to contact resistance in the junction connector (straight).



7-3 Cable wiring procedure in control panel

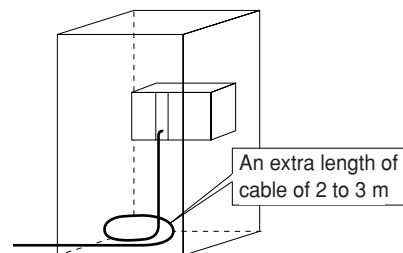
[1] Fixing of the cable

In order not to put any force on the cable and the JW-20CM, fasten the cable to a line nearby input of a control panel or a "T" branch point to the JW-20CM using saddles etc.



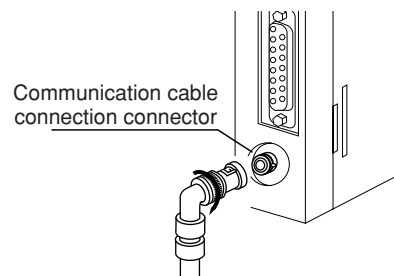
[2] Extra length of cable

Provide an extra length of the cable of 2 to 3 m inside a control panel for easier processing of the cable end and easier wiring when changing module positions.



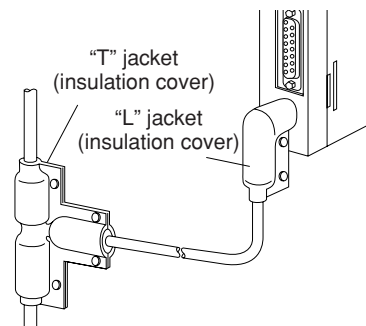
[3] Connection to the JW-20CM

The connector to the JW-20CM should be turned right to secure locking, not merely inserted.



[4] Insulation cover

When the connector touches with a high voltage section or external enclosures, communication errors may occur. Make sure to install an insulation cover.

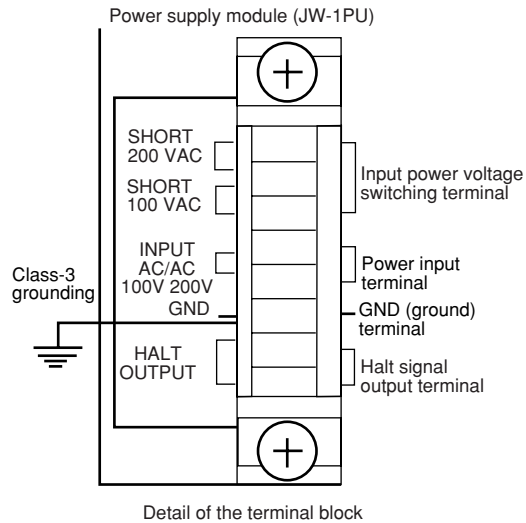


[5] Grounding of power supply module

Make sure to connect the GND terminal of the power supply module to a class-3 grounding.

- If the power supply module is not grounded, the JW-20CM cannot conduct with the ground after turning "ON" the shield ground switch.

In case of AC power supply module (JW-1PU)

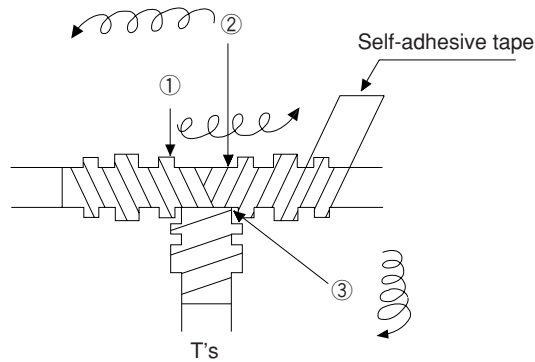


7-4 Waterproof and insulation processing of connectors

In order to prevent water intrusion into the “T” branch connectors and the straight connectors, we recommend to wind a self-adhesive tape and provide waterproof processing for them. For insulation purposes, cover these connectors with jackets.

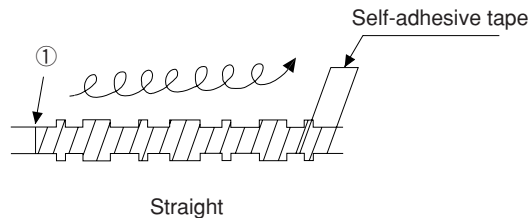
[1] “T” branch connector

To wind a self-adhesive tape, cut the tape at about 10 cm each and start winding from position ①. Start winding cut tapes from ② and ③ as well.



[2] Straight connector

To wind the self-adhesive tape, cut the tape at about 15 cm each and start winding from position ①.

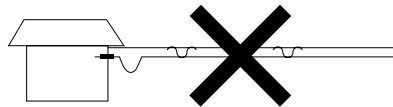


Remarks

Prior to adhering the tape, clean the surface of the connectors and stick the adhesive side of the tape on the connector surface. Wind to lightly spread on the connector surface, and overlap with the next wrap to half of the tape width. Wind the tape for each wrap evenly so that the connector metal portion is completely covered with the tape. Be careful not to excessively stretch the tape.

7-5 Wiring of cables at outside control panels

- ① Do not bundle the coaxial cable (the trunk and branch lines) together with power cables, and separate from power cables at least by 100 mm. Do not put the coaxial cable into a power line wired duct. The best way is to put the communication line in an independent duct.
- ② Be careful that the coaxial cable does not receive any load by laying under a heavy weight such as other cables.
When other cables run in the same duct as the coaxial cable, run the coaxial cable on the top position.
- ③ Do not run the coaxial cable outdoors as it may cause damage to the JW-20CM due to inductive lightning or atmospheric charge during lightning.



7-6 Check after wiring

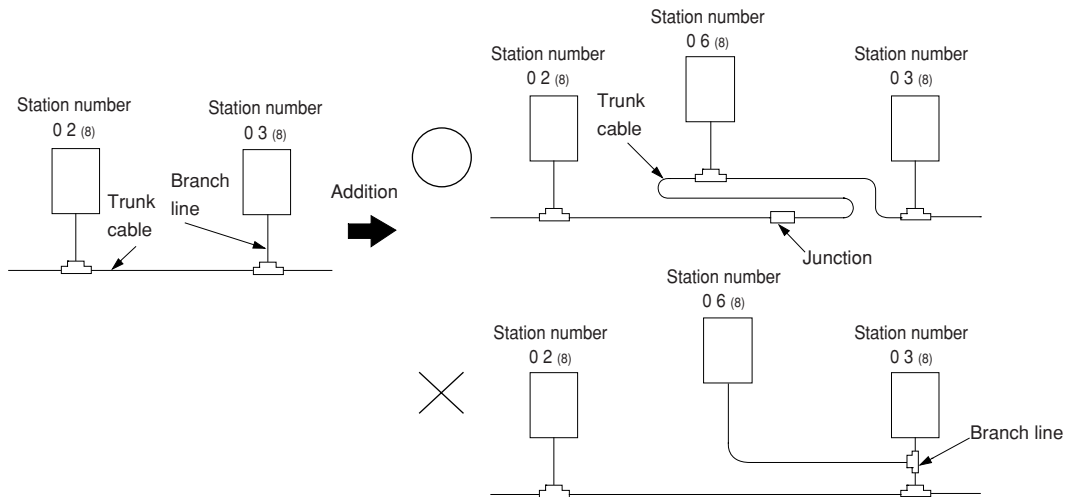
Check the items below after completion of wiring.

| | Check contents |
|----|--|
| 1 | The recommended connector types are used. |
| 2 | The connectors are securely locked. |
| 3 | The connectors are insulated by T jacket or L jacket. |
| 4 | The recommended coaxial cable type is used. |
| 5 | Curved radius of the coaxial cables are more than 45 mm. |
| 6 | No heavy load is on the coaxial cables. |
| 7 | The coaxial cable is not bundled with a power line cable. (Away from power line cables more than 100 mm.) |
| 8 | Length of branch lines is shorter than 400 mm. |
| 9 | Total length of the cable is less than 1 km. |
| 10 | Settings of the termination resistance switch and the shield ground switch are as per the drawings. |

7-7 Wiring method for adding a communication station

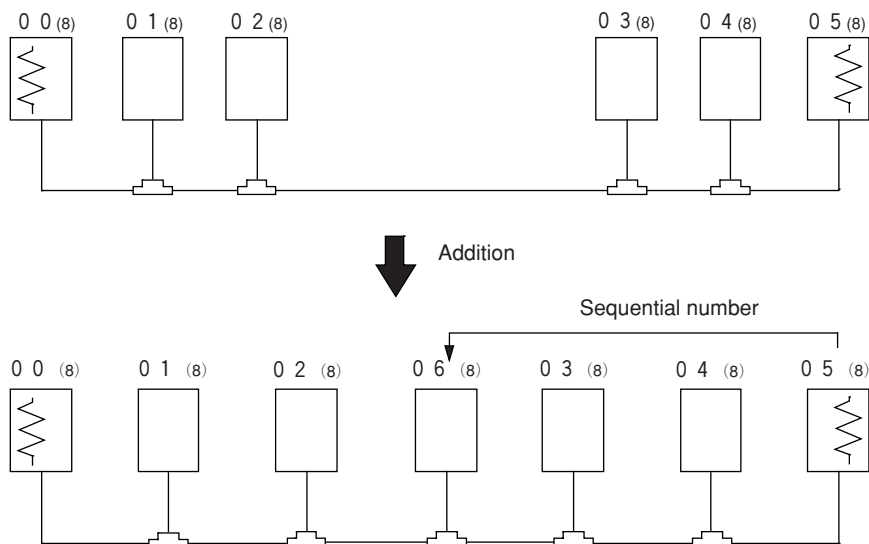
[1] Branching method

When branching a line for an additional station, be sure to branch from the trunk using a T connector. Never branch from a branch line.



[2] Station number of the additional station

Station number of the newly added station should be next largest number from the current largest numbered station. Each station should not be required to be arranged in order of each station's number.



 means the termination resistance switch being turned "ON."

[3] Notes

When adding a communication station, follow the items below.

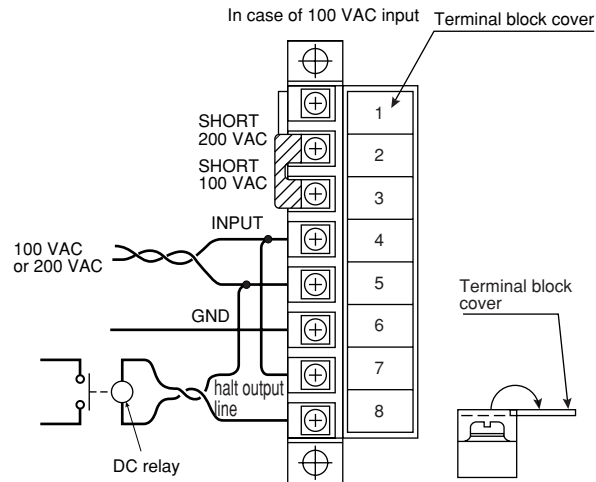
| No. | Item | Reason |
|-----|---|---|
| 1 | Branch from the trunk cable. | Another branch line from a branch line may not give appropriate communication by reflection wave. |
| 2 | Don't use the same station number twice. | The use of the same station number twice may cause communication errors. |
| 3 | Check the termination resistance switch. | When the newly added station becomes a termination of the circuit, change the setting of the LT switch. |
| 4 | Provide extra length for the expansion cable. | Have enough cable length in order to provide easy wiring. |
| 5 | Do not exceed the 1 km limit for total length of the cable. | Longer wiring may cause communication error by signal attenuation. |
| 6 | Change the layout drawing for installation. | Maintain the added work data for future maintenance use. |
| 7 | Do not overlap with any PC's communication area. | When the communication area or the flag area of the added station overlaps with other addresses in use, communication errors may occur. |
| 8 | Set the parameter memory of the master station and that of the newly added station. | Without setting the parameter memory of the master station and that of the slave station, the added station cannot communicate. |

7-8 Wiring to power supply module

[1] JW-1PU

- Open the terminal block cover, fasten with the screw with torque of less than 12kg·cm.
- A maximum of three halt output lines can be connected serial. To use more than three sets, use a relay for interconnection.

In case of 100 VAC input

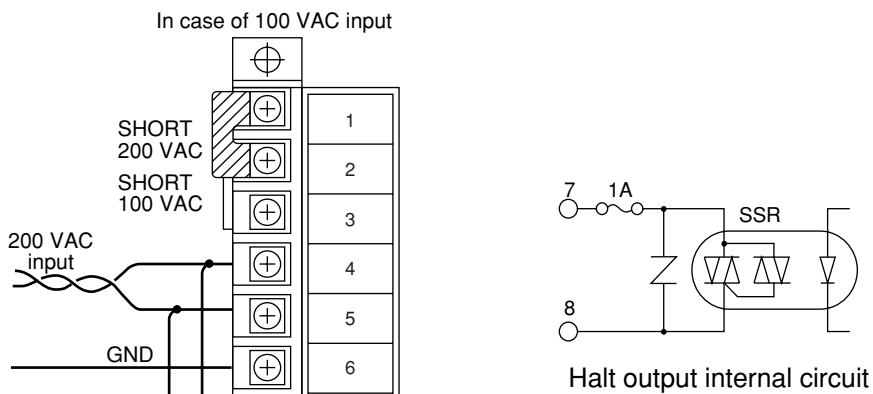


The coil rating must conform to the power supply voltage.

In case of using DC output module, connect the AC relay in the halt output line and insert the contact with the emergency stop circuit.

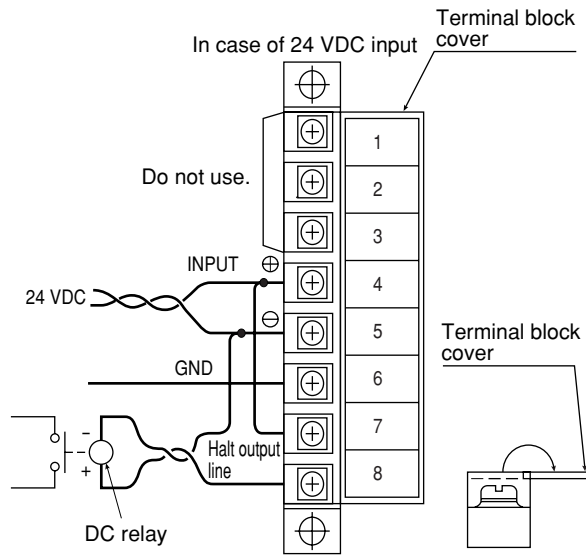
In case of 200 VAC input

- In case of using 200 VAC, switched to the 200 V side in terminal block of power supply module.
- If 200 V is added with the clip connected to the 100 V side, it may damage the power supply module.



[2] JW-2PU

- Open the terminal block cover, fasten with the screw with torque of less than 12kg·cm.
- Halt output lines can not be connected serial. To use more than two sets, use a relay for interconnection.

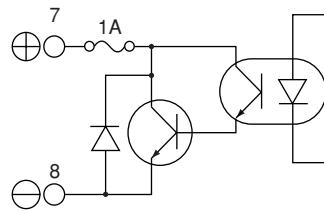


The coil rating must conform to the power supply voltage.

Connect the DC relay in the halt output line and insert the contact with the emergency stop circuit.

Remarks

- Connect without confusing polarities of input power supply and halt output signal.
- Wrong polarity connection may damage the power supply module when charged.



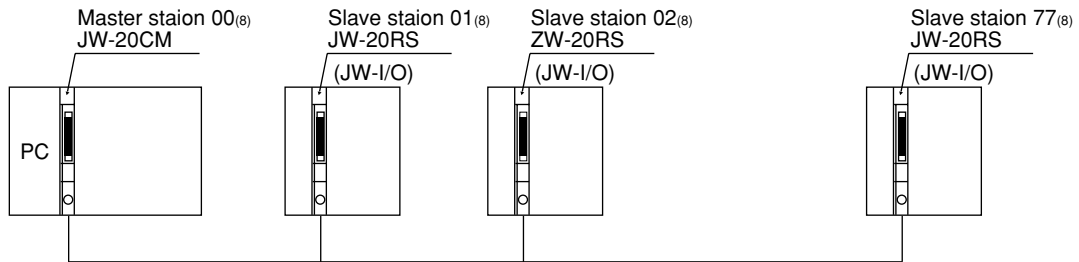
Halt output internal circuit

Chapter 8 Remote I/O

8-1 Description of remote I/O

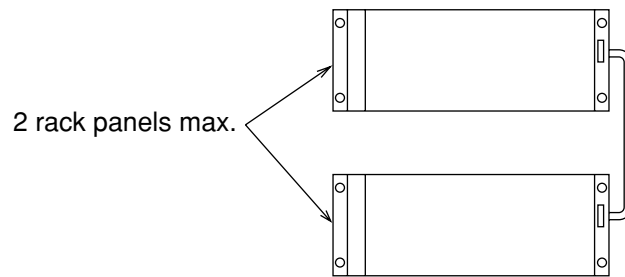
- If remote I/O slave module JW-20RS is installed on I/O modules located separately, one PC (master station) having a network module JW-20CM can control these I/O modules.
- Connect between a master station JW-20CM and slave station JW-20RS using one coaxial cable. As the network module JW-20CM and remote I/O slave module JW-20RS control communication, there is no need any special program for the PC.
- More than one master stations can be mounted on one PC.
- Maximum 63 modules of slave stations can be connected within the cable total extension length 1 km.
- If a JW model PC has a master station, it can connect with stave stations having JW model I/O modules and slave stations having ZW model I/O modules. However, mixed installation of JW and ZW model I/O modules on one slave station is not available.

[If a master station is installed on a ZW model PC, it can connect only with slave stations having ZW model I/O modules.]



(Slave station : 63 stations max., cable total extension length : 1km max.)

- Rack panel can use 2 sets max. per slave station. But, unavailable for use I/O bus expansion adapter (JW-1EA, JW-2EA).



- Special I/O module of JW model has the following limitation for number of modules to be used.

| | | |
|------------------------------|---|-----------------|
| Per remote I/O slave station | Total of special I/O module | 8 modules max. |
| | Total number of bytes of special I/O module | 128 bytes max. |
| All remote I/O slave station | Total of special I/O module | 32 modules max. |
| | Total number of bytes of special I/O module | 512 bytes max. |

| Module name | Model name | Number of occupied bytes |
|-------------------------|--------------------|--------------------------|
| Analog input | JW-8AD | 36 bytes |
| Analog output | JW-2DA | 8 bytes |
| High-speed counter | JW-2HC | 8 bytes |
| I/O link master station | JW-31LM | 2 to 64 bytes |
| ID control module | JW-11DU JW-12DU | Maximum 64 bytes |
| Positioning module | JW-12PM | 16 bytes |

- Allocation of number of I/O points per remote I/O slave station have “fixed allocation” and “manual allocation.”

| Allocation method | Contents | Number of I/O points per station | Available for connected number of slave stations | Total number of I/O points |
|-------------------|---|---------------------------------------|--|----------------------------|
| Fixed allocation | · Allocate for every 64 points or 128 points | 64 points | 63 stations | 4032 points (504 bytes) |
| | | 128 points | 32 stations | 4096 points (512 bytes) |
| Manual allocation | · Allocate between 8 to 1024 points in 8 point unit · Number of connectable slave stations and total number of I/O points are limited, 63 stations and 4096 points at maximum, be careful do not exceed these limitaitons. | (Example 1) In case of 64 points | 63 stations | 4096 points (512 bytes) |
| | | (Example 2) In case of 1024 points | 4 stations | 4096 points (512 bytes) |

8-2 Data transfer required time and communication timing

(1) Required time for data transfer

Time required for a master station to communicate with all the slave stations is determined by number of connected stations and number of points of all slave stations, as well as number of data bytes of JW model special I/O modules.

$$T = \frac{(N + 136 \times P) \times 2}{1250} + 1.4P + 5.3 + 2.5(P + 1) + \alpha \text{ [ms]}$$

N : Total number of data bytes of all the slave station's I/O model and JW model special I/O modules (value to be calculated by number of bytes \times 8 points)

P : Number of slave stations

136 : Use 136 bits for station address on the communication format and error check function.

1250 : Baud rate; 1.25 M bit/sec.

1.4P + 5.3 : Data processing time of the master station

2.5 : Total sequential send processing of the communication stations.

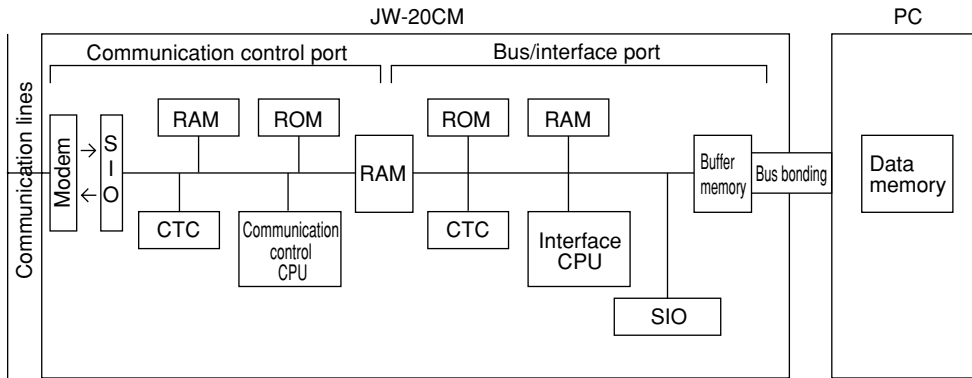
α : Communication time at executing remote program/remote monitor.

Remarks

- If "synchronous" is selected, one scan cycle time of a PC will vary with change of transfer required time.
- Number of data bytes on the JW model special I/O module is a value set in parameter address 000600 to 000777₍₈₎ on the master station.

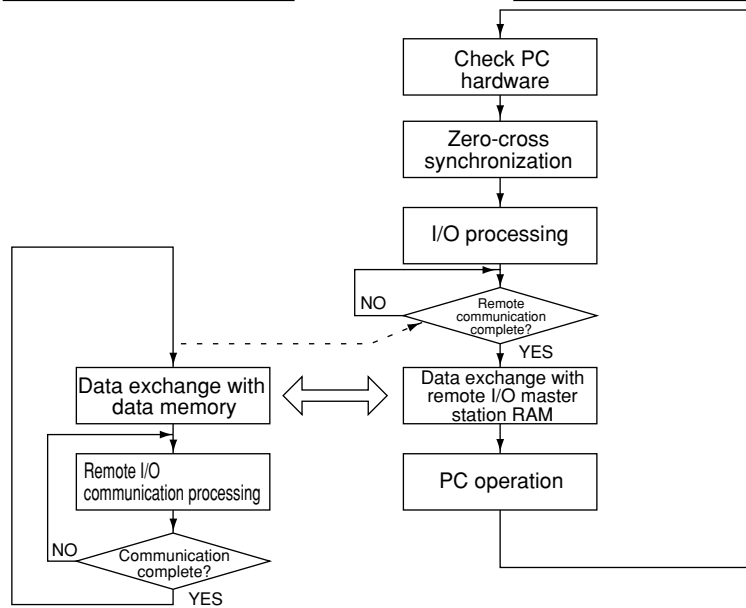
(2) Communication timing

- For communication with slave stations, either of "synchronous" and "asynchronous" can be selected for operation with the master station PC.
- When "synchronous" is selected, the JW-20CM communicates with synchronize with operation (one scan) of the master station PC.
- When "asynchronous" is selected, the JW-20CM communicates with slave stations regardless of operation of the master station PC. Therefore, even if communication of all stave stations is not completed, the JW-20CM starts data exchange with the master station and PC.



Processing of JW-20CM

Processing of PC side



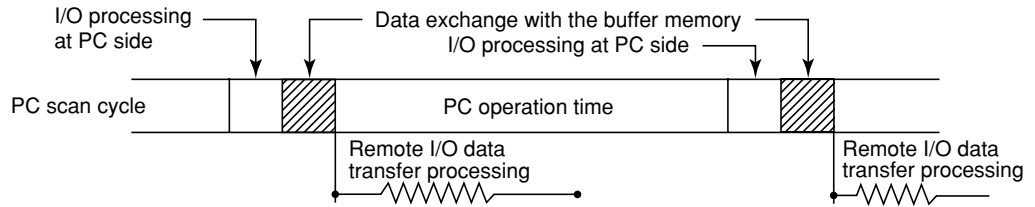
Remarks

The slave station will not performs the zero-cross operation even if the master station PC is "set zero-cross (zero-cross switch 07367 at OFF)".

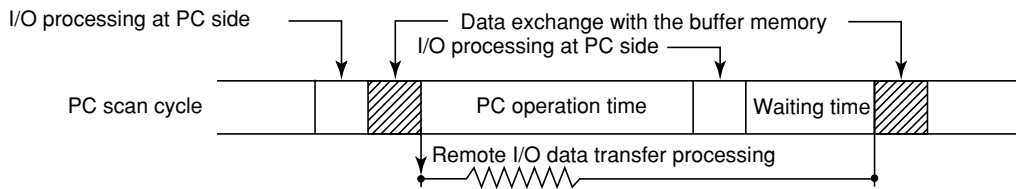
① **Operational synchronous**

When more than one JW-20CM is installed while using the remote I/O function, set only one module as “operational synchronous.” When a link module ZW-10CM or JW-10CM is used for remote I/O, the JW-20CM should be set as “operational asynchronous.”

a. When operation interval (one scan) of the master station PC is longer than data transfer time of the remote I/O:



b. When operation interval (one scan) of the master station PC is shorter than data transfer time of the remote I/O:



※ A waiting time is provided after the PC process to match with end timing of the data transfer process of the remote I/O so that the remote I/O can synchronize with the PC scan cycle.

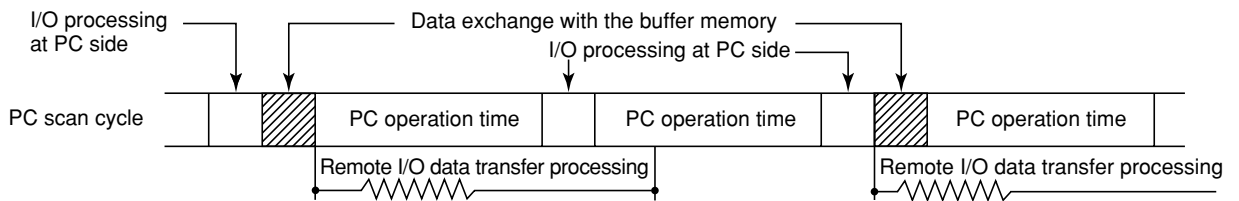
② **Operational asynchronous**

The special I/O module can not be used with the remote I/O slave module as the special I/O module cannot synchronize with the master station PC for data exchange.

a. When operation interval (one scan) of the master station PC is longer than data transfer time of the remote I/O:

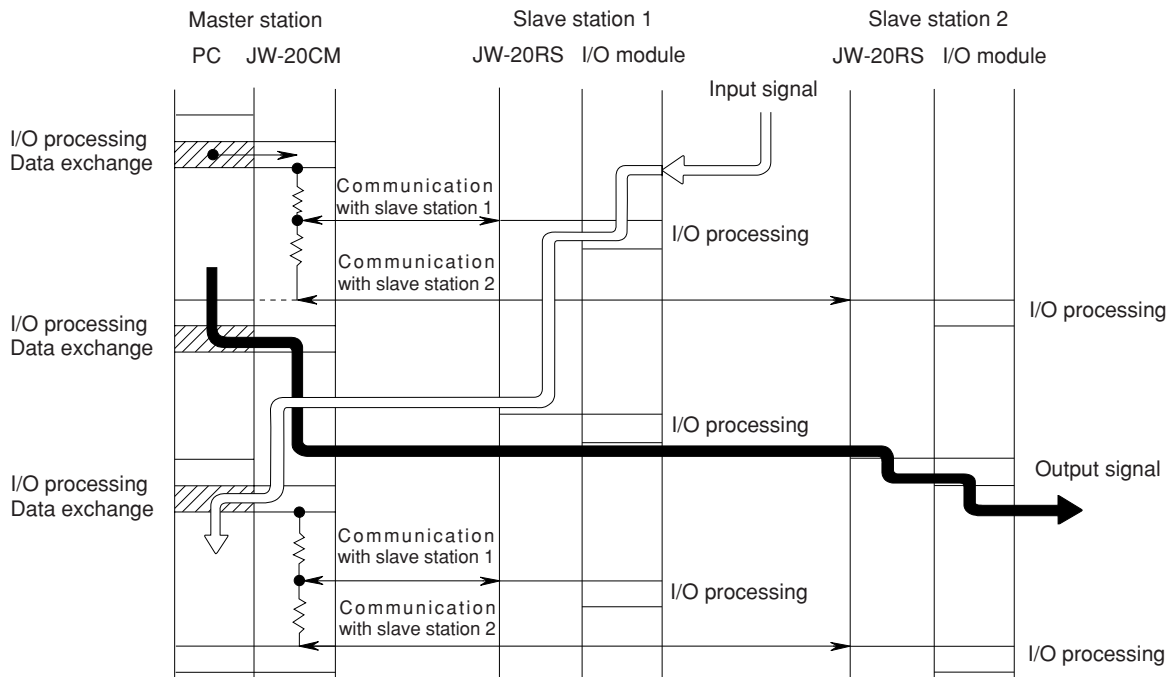
Same as operational synchronous above.

b. When operation interval (one scan) of the master station PC is shorter than data transfer time of the remote I/O:



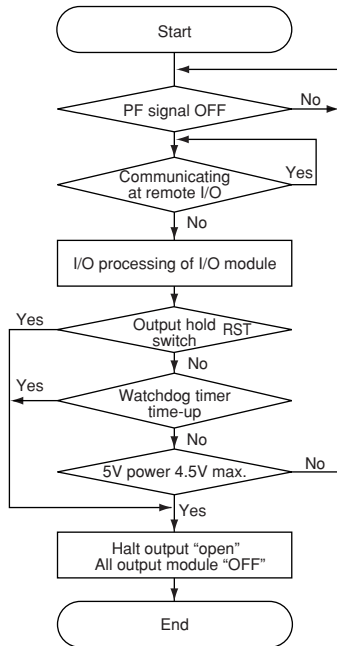
(2) Data flow with slave module

I/O processing of the slave module shall be carried out after completion of communication with the master station.



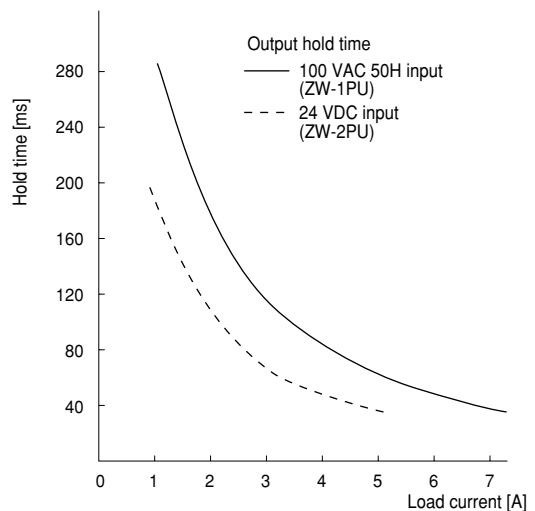
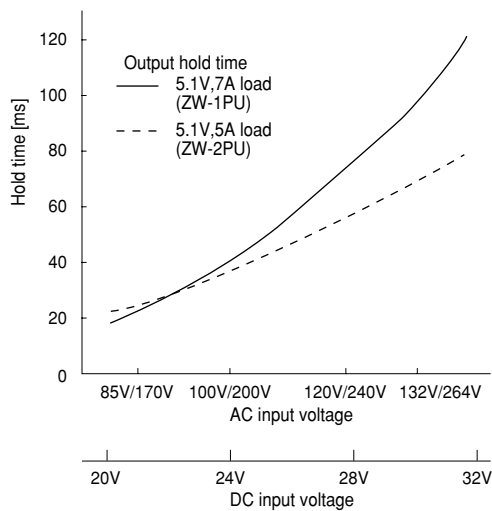
(4) Voltage interruption time of slave module

The voltage interruption operation of slave module is carried out for service interruption signal (PF signal) of power supply module, watchdog timer of slave module, and check 5 V power regardless of setting voltage interruption time (#246) of master module.



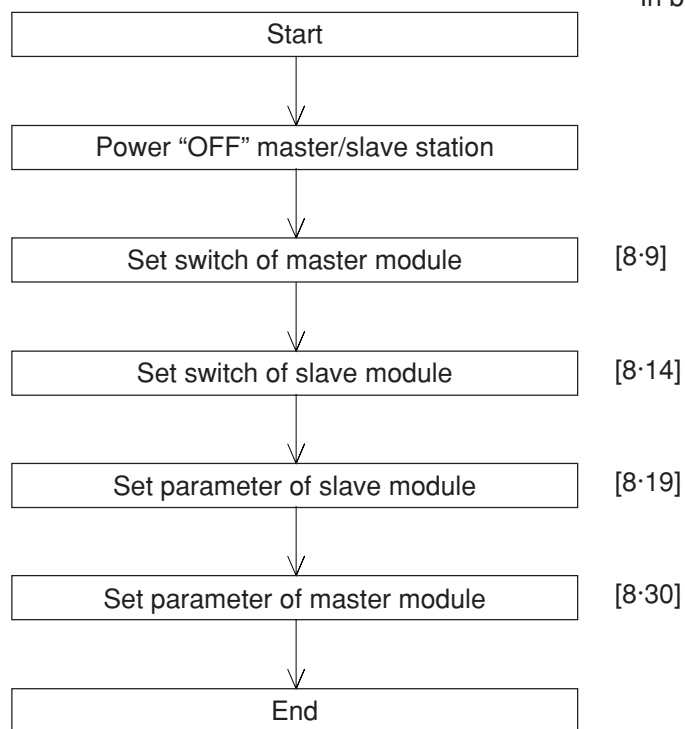
- The PF signal of the power supply module goes "OFF" below 85% of the rated voltage.
- The watchdog timer of the slave module goes time-up in "320 ms."
- When output hold switch is "RST," the all halt output and output module become "OFF" when communication with master station have interruption of 320 ms.

- When the check of 5 V power is gone below 4.5 V, all are forced to reset. The power supply characteristics varies according to the consumption current of the power supply module as following diagrams.



8-3 Outline of switch and parameter setting procedure

In brackets: See page



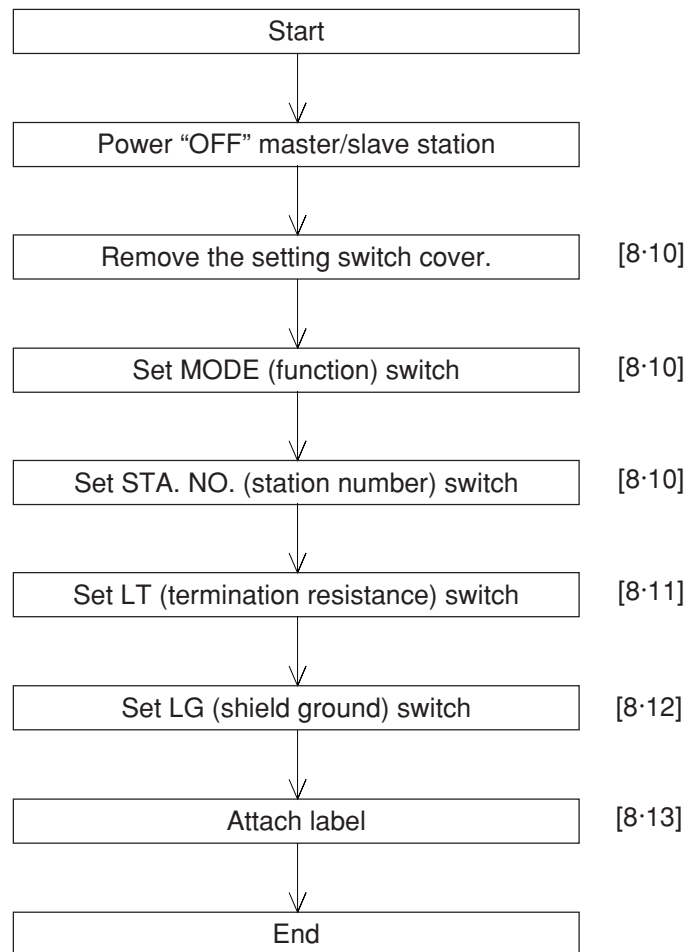
Remarks

- Make sure to turn "OFF" the power of the PC prior to setting the switch.
- Parameter must be started from the slave module first.
- Prior to setting the parameters of master module, set the operation mode of the JW-20CM to "program mode."
- Make sure to write the set parameters into the EEPROM on the JW-20CM after setting.

(1) Switch setting of master module (JW-20CM)

In brackets: See page

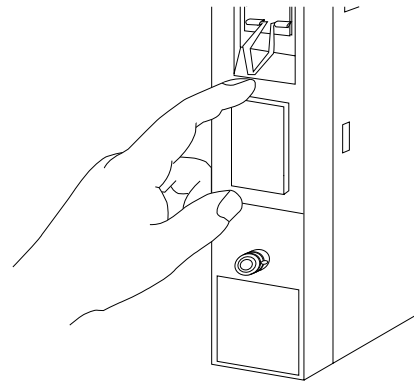
Operation procedure



Turn master module and slave module power "OFF."

Remove the setting switch cover of master module JW-20CM.

- With your fingertips over the top and bottom of the switch cover, pull the cover towards you to remove it.
- Keep the cover saved as it must be installed after switch setting.

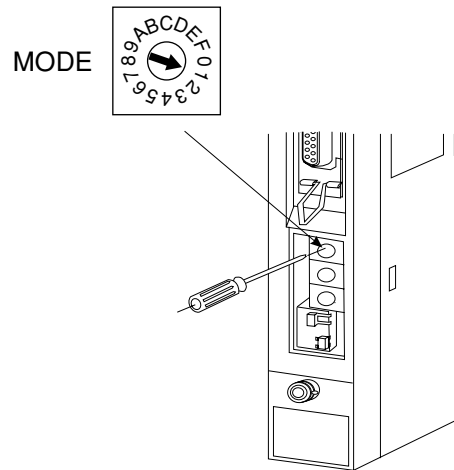


Set MODE (function) switch

- Be sure to setting "1."

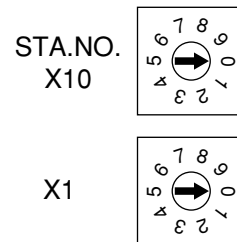
| Setting value | Function |
|---------------|--|
| 0 | Set at delivery |
| 1 | Remote I/O |
| 2 | Data link (standard function) |
| | Computer link |
| 3 | Data link (memory capacity save function) |
| | Computer link |
| 4-F | Test mode A service man will use these switches for adjustment. |

Do not set "4 to F."



Set STA. NO. (station number) switch

- Set the station address to "00."

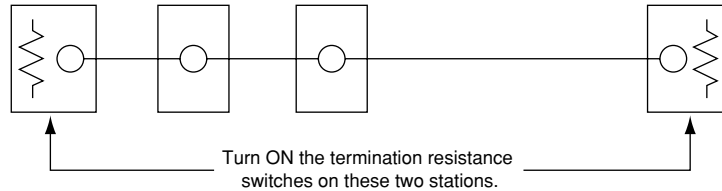
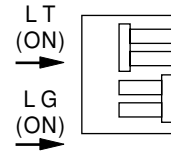


To the next page

From the previous page

Set LT (termination resistance) switch

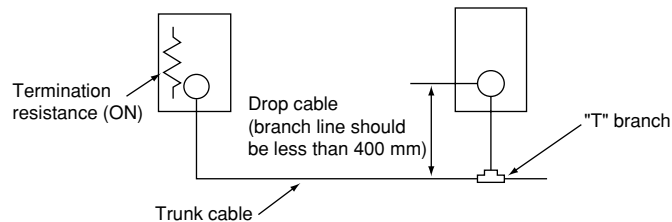
- When a JW-20CM master module is at either end the communication line, make sure to set the termination resistance switch "ON."



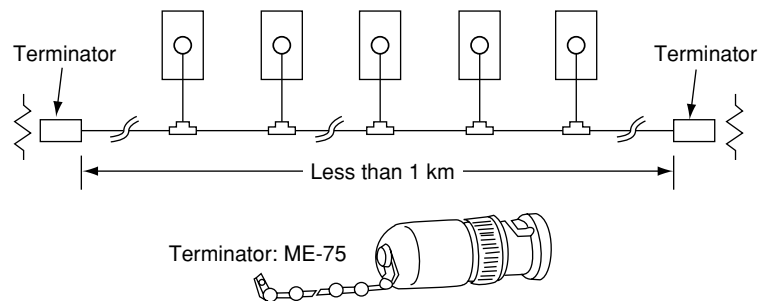
Reference: Function of the termination resistance switch

If the communication line does not have a termination resistance, the high frequency signal will be reflected at the ends of the cable. These reflected signals can collide with the original communication signals, so that some stations will not be able to communicate normally. The use of termination resistance suppresses reflected signals. If the termination resistance switch on any of the stations in between the end of the cable is turned ON, the station will generate a reflection wave signal or attenuate the original signal and may not communicate normally.

- When the trunk line has a branch in it, turn ON the termination resistance at the station on the trunk cable.



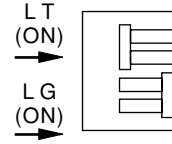
- If you use a terminator (termination resistance made by Toko Denshi: ME-75) at the end of a signal cable, turn OFF the termination resistance at the station on the end of the cable.



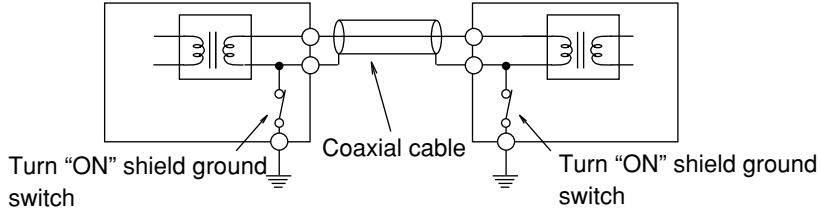
To the next page

From the previous page

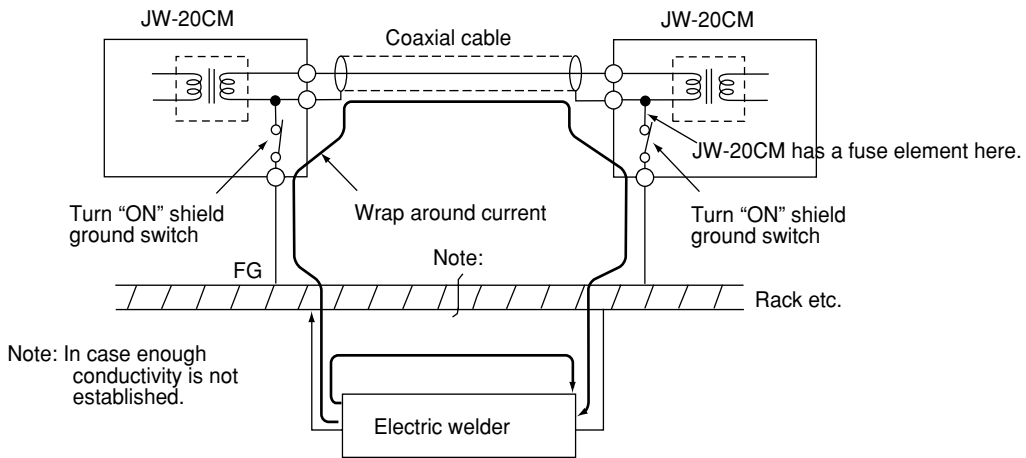
Set LG (shield ground) switch



- For communication lines, use a coaxial cable.
- As coaxial cable is an unbalanced circuit, ground its shield by turning "ON" the shield ground switch.



- Make sure to provide a class-3 grounding for the GND terminal of the power supply module. Without grounding the power supply module, the JW-20CM cannot become conductive with the ground after turning "ON" the shield ground switch. (See page 7-2.)
- Prior to any electric welding around the JW-20CM, take out the coaxial cable from the JW-20CM. While the coaxial cable is connected to the JW-20CM, any electric welding nearby the JW-20CM will cause the welding current to the JW-20CM and may damage part of its circuit pattern.



To the next page

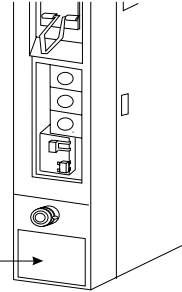
From the previous page

Attach label

- Attach the remote I/O master station label to this module, make setting "remote I/O master station function" clear.
- Write "FIX" on this label.

LINK FUNCTION
REMOTE I/O
MASTER

STATION NO.
FIX



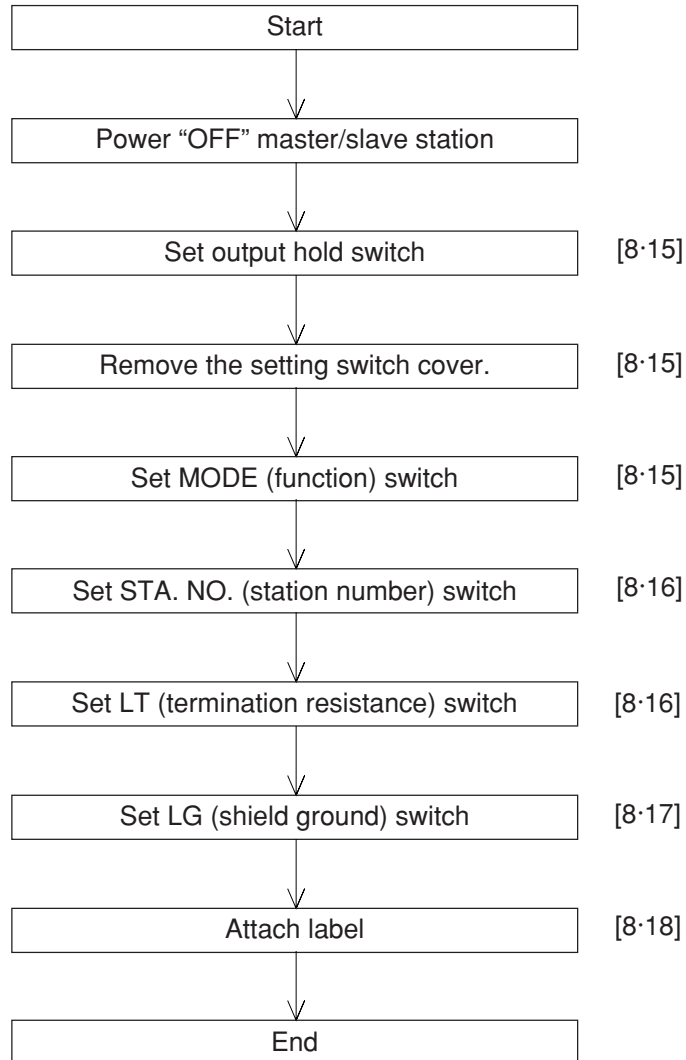
Switch setting end of master module

(2) Switch setting of slave module (JW-20RS)

Operation procedure

All slave module in common for setting method

In brackets: See page



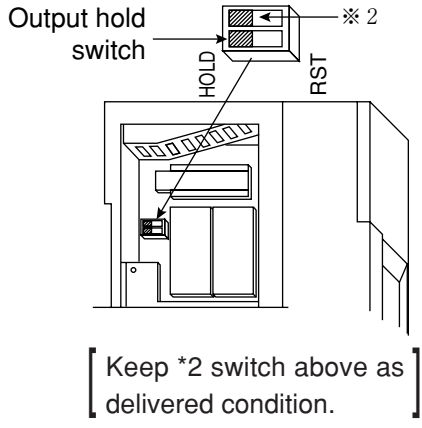
Power "OFF" master/slave station

Set output hold switch

- Set this switch whether to "latch" or "turn OFF all points" of output circuits when the slave module JW-20RS stops operation.
- In case of using I/O module of JW model, be sure to setting "HOLD".

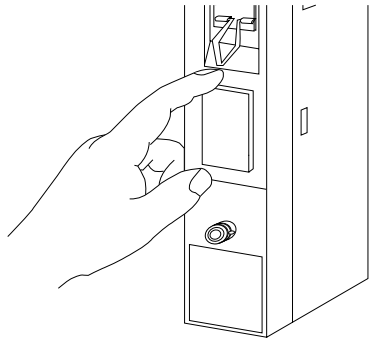
| Switch setting | Contents | |
|---|----------|-------------------|
| In case of using I/O module of ZW model | HOLD | "Hold" |
| | RST*1 | "All points OFF" |
| In case of using I/O module of JW model | HOLD | Setting at "hold" |

※ 1 When the slave module JW-20RS stopped, the halt output turns "open" and output module sets "all points OFF". (See page 8-50).



Remove the setting switch cover of master module JW-20RS.

- With your fingertips over the top and bottom of the switch cover, pull the cover towards you to remove it.
- Keep the cover saved as it must be installed after switch setting.



Set MODE (function) switch

- Select the model of I/O module that installed on respective slave module.

| Setting value | Model of I/O module |
|---------------|------------------------|
| 1 | I/O module of ZW model |
| 2 | I/O module of JW model |



The mode switch is set to "2" at delivery. Positions "3 to F" will be used only by our service man. Do not set the switch to these positions.

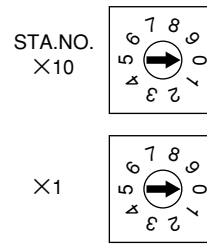
- If the master station PC is JW model, it can connect to the slave modules having "ZW model I/O module" and "JW model I/O module" on the same circuit.

To the next page

From the previous page

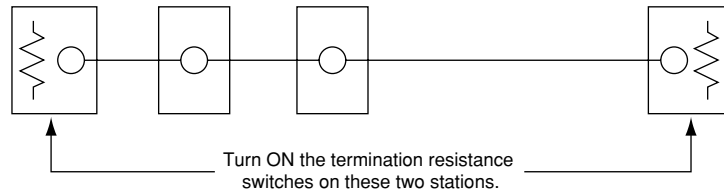
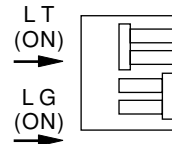
Set STA. NO. (station number) switch

- Set "STA. NO" (station number) in octal notation in sequential numbers from 01 to 77. Be careful that there is no doubled setting or lacked number setting. (Number of connectable slave stations: See page 8·2)



Set LT (termination resistance) switch

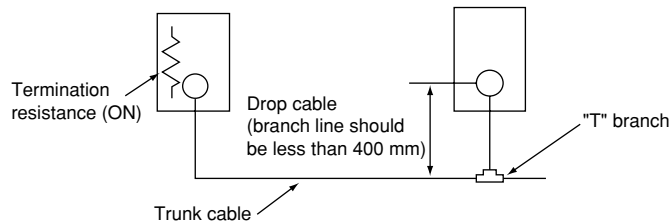
- When a JW-20RS slave module is at either end the communication line, make sure to set the termination resistance switch "ON."



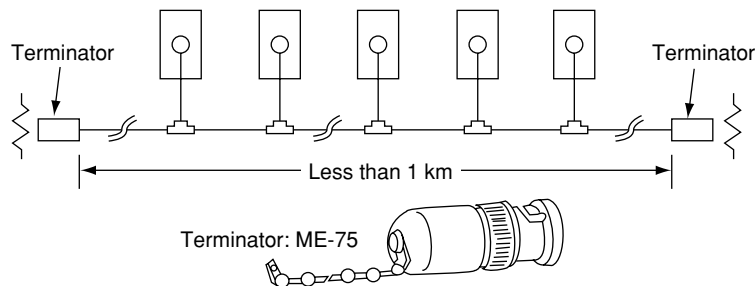
Reference: Function of the termination resistance switch

If the communication line does not have a termination resistance, the high frequency signal will be reflected at the ends of the cable. These reflected signals can collide with the original communication signals, so that some stations will not be able to communicate normally. The use of termination resistance suppresses reflected signals. If the termination resistance switch on any of the stations in between the end of the cable is turned ON, the station will generate a reflection wave signal or attenuate the original signal and may not communicate normally.

- When the trunk line has a branch in it, turn ON the termination resistance at the station on the trunk cable.



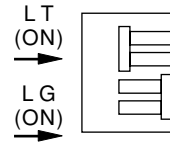
- If you use a terminator (termination resistance made by Toko Denshi: ME-75) at the end of a signal cable, turn OFF the termination resistance at the station on the end of the cable.



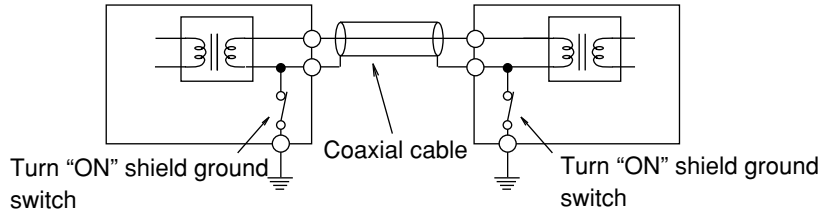
To the next page

From the previous page

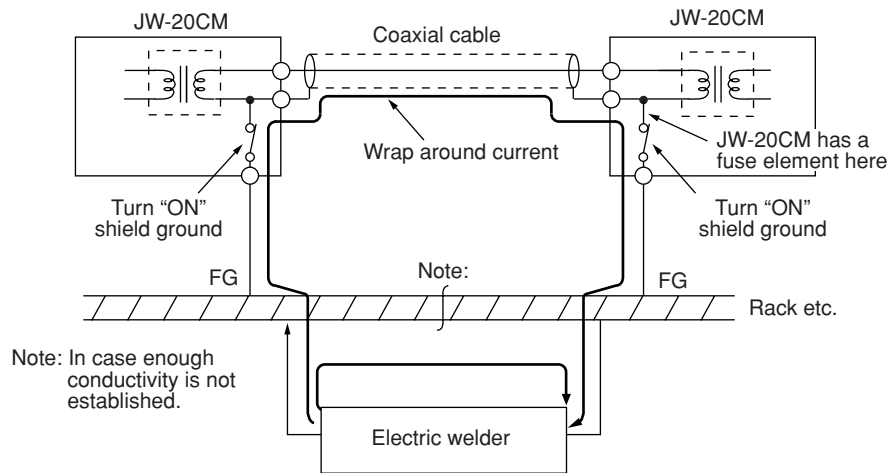
Set LG (shield ground) switch



- For communication lines, use a coaxial cable.
- As coaxial cable is an unbalanced circuit, ground its shield by turning "ON" the shield ground switch.



- Make sure to provide a class-3 grounding for the GND terminal of the power supply module. Without grounding the power supply module, the JW-20CM cannot become conductive with the ground after turning "ON" the shield ground switch. (See page 7-2.)
- Prior to any electric welding around the JW-20CM, take out the coaxial cable from the JW-20CM. While the coaxial cable is connected to the JW-20CM, any electric welding nearby the JW-20CM will cause the welding current to the JW-20CM and may damage part of its circuit pattern.



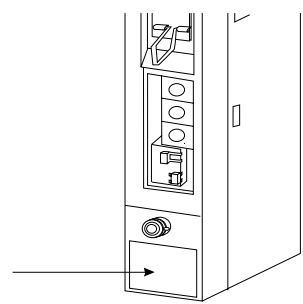
To the next page

From the previous page

Write in label

- Write "FIX" and "STA. NO." on label of remote I/O slave station, make setting contents clear.

STATION NO.
01
FIX



Switch setting end of slave module

(3) Parameter setting of slave module (JW-20RS)

Set the following parameter address after setting switch. Setting item varies with using I/O module (JW model or ZW model).

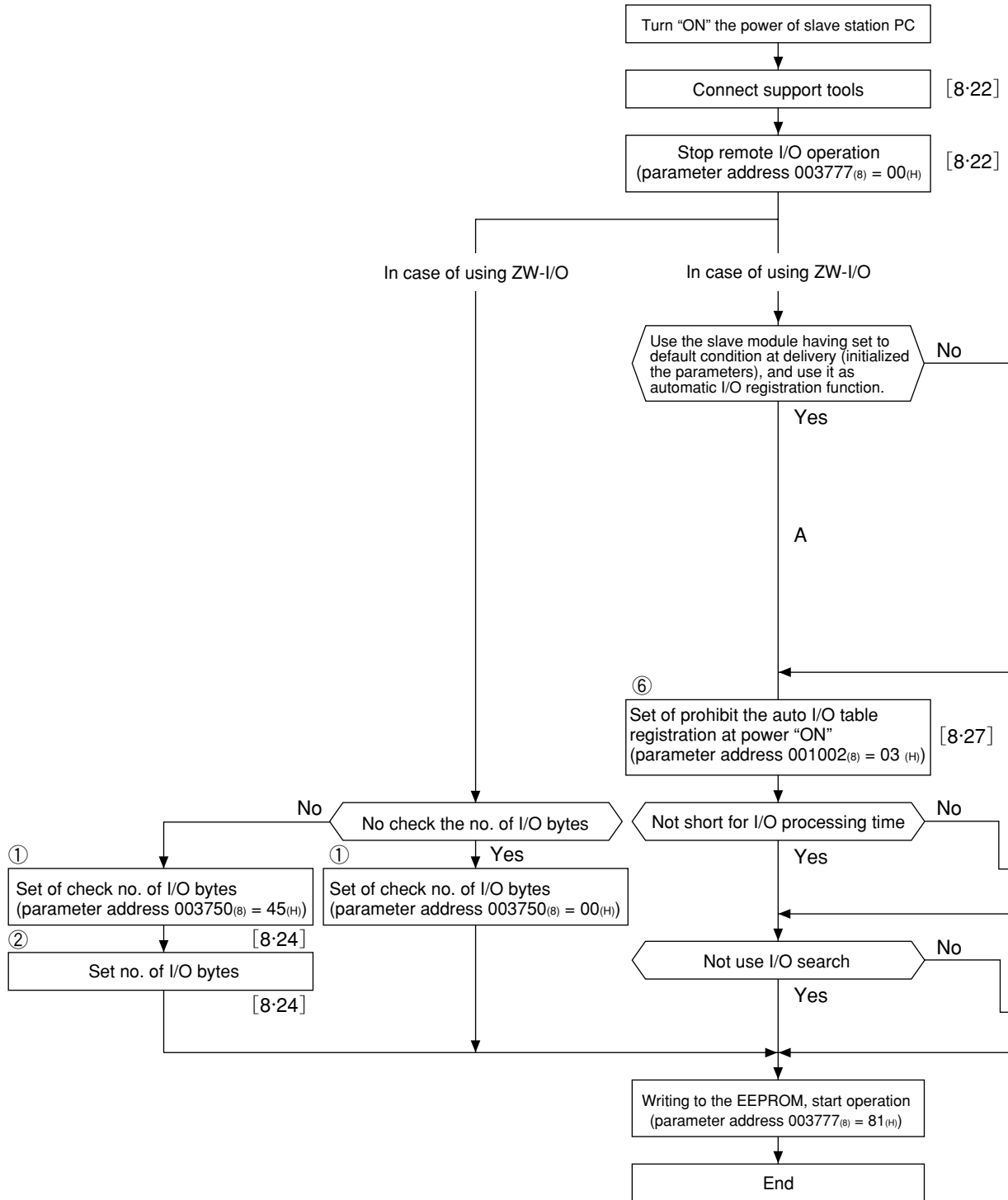
O: Necessity for setting

| Item | Address (8) | Initial value (H) | Setting contents | JW-I/O | ZW-I/W | See page |
|---|------------------------|-------------------|--|--------|--------|------------------|
| Setting no. of dummy I/O points · Use 1 byte per vacant 2 slots · Set at only manual I/O table registration | 000000 to 000017 | 00 | 0 : No. of dummy I/O points : No points | ○ | — | 8 · 25 |
| | | | 1 : No. of dummy I/O points : 16 points (2 bytes) | | | |
| | | | 2 : No. of dummy I/O points : 32 points (4 bytes) | | | |
| | | | 3 : No. of dummy I/O points : 48 points (6 bytes) | | | |
| | | | 4 : No. of dummy I/O points : 64 points (8 bytes) | | | |
| | | | 5 : No. of dummy I/O points : 80 points (10 bytes) | | | |
| | | | 6 : No. of dummy I/O points : 96 points (12 bytes) | | | |
| | | | 7 : No. of dummy I/O points : 112 points (14 bytes) | | | |
| | | | 8 : No. of dummy I/O points : 128 points (16 bytes) | | | |
| | | | 9 : No. of dummy I/O points : 144 points (18 bytes) | | | |
| | | | A : No. of dummy I/O points : 160 points (20 bytes) | | | |
| | | | B : No. of dummy I/O points : 176 points (22 bytes) | | | |
| | | | C : No. of dummy I/O points : 192 points (24 bytes) | | | |
| | | | D : No. of dummy I/O points : 208 points (26 bytes) | | | |
| E : No. of dummy I/O points : 224 points (28 bytes) | | | | | | |
| F : No. of dummy I/O points : 240 points (30 bytes) | | | | | | |
| Set kinds of I/O module · Use 1 byte per slot · Set at only manual I/O table registration | 000100 to 000137 | 00 | 91 : 16 points output | ○ | — | 8 · 26 |
| | | | 92 : 32 points output | | | |
| | | | 94 : 64 points output | | | |
| | | | 00 : Vacant slot (lower is dummy I/O points) | | | |
| | | | A1 : 16 points output | | | |
| | | | A2 : 32 points output | | | |
| | | | A4 : 64 points output | | | |
| | | | D1 : Special I/O module | | | |
| F1 : Special I/O module | | | | | | |
| Set max.racks and slot number | 001000 | 00 | Upper 4 bits : Rack number Lower 4 bits : Slot number | ○ | — | 8 · 28 |
| Set manual I/O table registration | 001001 | 00 | 60 : Manual setting for both dummy I/O points and kinds of I/O module | ○ | — | 8 · 27 |
| | | | 64 : Manual setting for dummy I/O points and auto setting for kinds of I/O module | | | |
| | | | 65 : 00 for dummy I/O points and auto setting for kinds of I/O module | | | |
| | | | 00 : When setting is normal end | | | |
| Register automatically or not I/O table at power input. | 001002 | 00 | 00 : Auto registration 03 : Prohibit the auto registration | ○ | — | |
| Set remote I/O top address | 001004 001005 | 00 | Set file address in octal when only using search module (SU) lamp. | ○ | — | 8 · 29 |
| Check no. of I/O bytes | 003750 | 00 | 00 : No check the no. of I/O bytes 45 : Check the no. of I/O bytes | — | ○ | 8 · 24 |
| Set no. of I/O bytes | 003752 | 00 | If "checking number of I/O bytes to be used by the I/O module" function is selected to "not to check" using decimal notation 000 to 128, this setting is not needed. | — | ○ | |
| | 003753 | 00 | | | | |
| Writing to the EEPROM, start operation/stop setting. | 003777 | 01 | 00 : Stop remote I/O operation | ○ | ○ | 8 · 22 8 · 23 |
| | | | 01 : Start remote I/O operation | | | |
| | | | 80 : Writing to the EEPROM, stop operation | | | |
| | | | 81 : Writing to the EEPROM, start operation | | | |
| | | | 08 : Initialize the parameter | | | |

· There is no difference of parameter setting between "fixed allocation" and "manual allocation."

Operation procedure

In brackets : See page



[I/O table registration in case of using JW-I/O]

1. In case of not setting dummy I/O

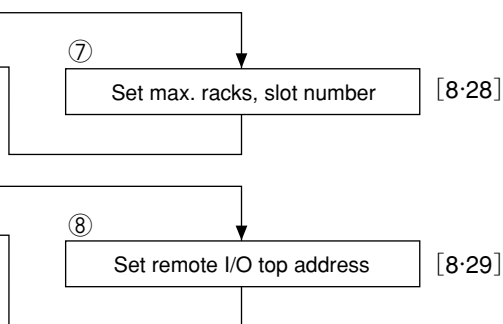
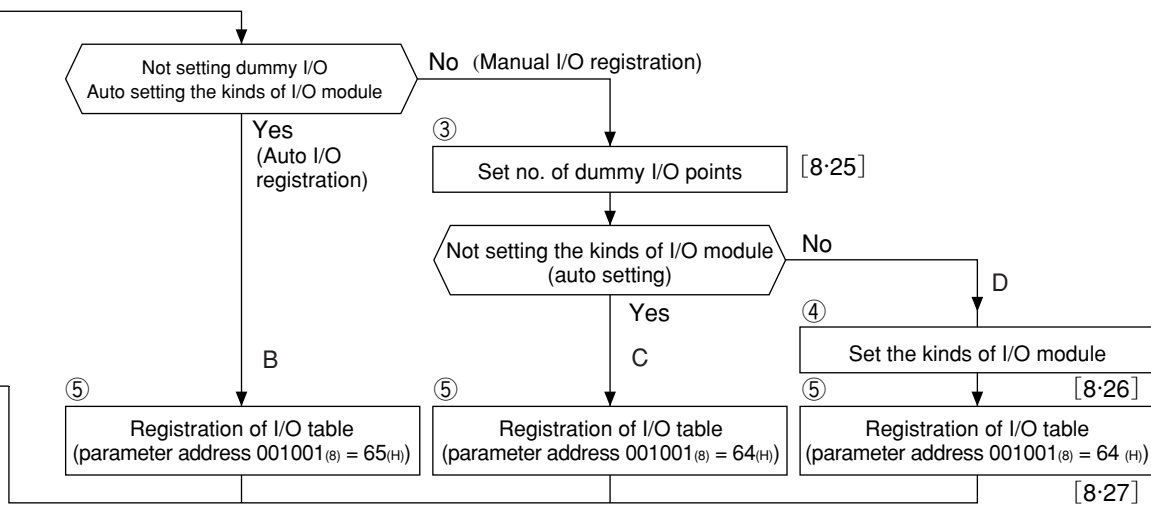
Register I/O table based on the installed I/O module. (Set parameter address $001001_{(8)} = 65_{(H)}$, the procedure B in the flow chart.)

However, in case of parameter address of JW-20RS $001002_{(8)} = 00_{(H)}$ (default setting), the JW-20CM automatically registers I/O table when the power is input and there is no need to register I/O table. (Procedure A in the flow chart.)

2. In case of setting dummy I/O

Set number of dummy I/O points for each slot and registers I/O table based on this setting and the installed I/O module. (Set parameter address $001001_{(8)} = 64_{(H)}$, procedure C in the flow chart.)

Procedure D in the flow chart is special method to set byte of I/O module for each slot. Normally set I/O module type using steps 1 and 2 above.



① to ⑧ are applied to page 8-24 to 29.

Turn "ON" the power of slave module

Connect support tools

- Connect a support tool with the slave module JW-20RS and prepare the setting parameter.

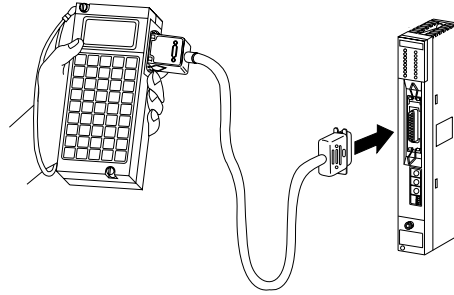
<Usable support tools>

JW-13PG/12PG

JW-50SP

JW-50PG, Z-100LP2S

- For operation of each support tool, see the instruction manual attached. The following describes an example of JW-13PG's key operation.



Stop operation of remote I/O

[HEX (hexadecimal), byte]

- Setting of the parameter is only available when the operation of the JW-20RS is stopped.
- Write "00_(H)" to parameter address 003777_(B) and stop operation of the JW-20RS.

(Operation example of JW-13PG)

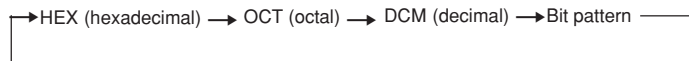
B 1 D 3 7 7 7 モニタ MNTR A 0 書込 ENT
 (Parameter setting) \ Display the contents of / (Write)
 parameter address 007777 by \ 00_(H).
 hexadecimal.

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 07775 | HEX | 00 |
| 07776 | HEX | 1F |
| I PARAM. | | |
| >07777 | HEX | 00 |

Reference Function of JW-13PG

- 変換 CONV key: Changeover unit of figures



- FORCE LNPTH key: Byte display ↔ Changeover word display

· Please set ① to ⑧ of 8-24 and after when using ZW-I/O or JW-I/O.

To the next page

Remarks

Indicates in [] of each item mean as follows:

(Example) Stop remote I/O operation [HEX (hexadecimal), bytes]

This means to set "stop remote I/O operation" by hexadecimal and byte unit.

From the previous page

Writing to the EEPROM, start operation

[HEX (hexadecimal), byte]

- Write “81_(H)” into parameter address 003777₍₈₎ and write the set parameter contents into the EEPROM. Then start the slave module.
- After starting operation, the setting value changes to “01_(H).”

| Setting value _(H) | Contents |
|------------------------------|--|
| 0 0 | Stop operation |
| 0 1 | Start operation |
| 8 0 | Writing to the EEPROM, stop operation |
| 8 1 | Writing to the EEPROM, start operation |
| 0 8 | Initialize setting values of parameter addresses |

(Operation example of JW-13PG)

アドレス ADRS D 3 7 7 7 モード MNTR SET 8 B 1 書込 ENT
 \ Display the contents of address 003777₍₈₎ \ Write 81_(H) \

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 03775 | HEX | 00 |
| 03776 | HEX | 00 |
| I PARAM. | | |
| >03777 | HEX | 01 |

Remarks

- Writing time to EEPROM is approximately 0.7 sec. When any error is found for parameter settings, lights the error code 9F_(H) by the indication lamp.
- Written contents into the EEPROM are automatically written to the RAM of the slave module when turning ON the power of the PC. At reading, the PC checks BCC and compares BCC check code of the parameter memory address (003776₍₈₎). When an error is found, the JW-20RS lights the error code 9E_(H) by the indication lamp.
- After initialized the parameters, the JW-20RS initializes parameter address 000000 to 003776₍₈₎.

"Only when using ZW model I/O module"

① **Select "number of I/O byte checking" function** [OCT (Octal), bytes]

(Applied to item ① on pages 8-20 to 22)

- Select whether to check or not number of bytes of I/O module used for the remote I/O slave module. Set selection in parameter address 003750₍₈₎. If "check" is selected, the I/O module can detect when number of I/O modules is changed by fault or disconnection of the I/O modules.

| Set value | Contents |
|-------------------|--------------|
| 00 _(H) | Do not check |
| 45 _(H) | Check |

Initial value: 00_(H) (Do not check)

(To select "check" using JW-13PG)

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 03746 | HEX | 00 |
| 03747 | HEX | 00 |
| I PARAM. | | |
| >03750 | HEX | 45 |

"Only when using ZW model I/O module"

② **Set number of I/O bytes** [DCM (decimal), word]

(Applied to item ② on pages 8-20 to 22)

- Set total number of bytes of installed modules when "yes" is selected (address 003750₍₈₎ = 45_(H)).
- If the set number of I/O bytes mismatch with the actual number of bytes of the installed module, the JW-20RS detects as error (error code 92_(H)).
- Set between 000 to 128 in decimal notation.

| Address | Contents |
|-----------------------|-------------|
| 003752 ₍₈₎ | Lower bytes |
| 003753 ₍₈₎ | Upper bytes |

Initial value: 00_(D) for both upper and lower bytes.

Ex.:

If one ZW-16N1 (16 points/2 bytes) and one ZW-16S1 (16 points/2 bytes) are installed,

(Set 2 bytes + 2 bytes = 4 bytes using the JW-13PG)

Screen display of JW-13PG

| | | |
|----------|---|-------|
| 03746 | D | 00000 |
| 03750 | D | 00037 |
| I PARAM. | | |
| >03752 | D | 00004 |

"Only when manual I/O registration using the JW model I/O module"

③ **Set number of dummy I/O points** [HEX (hexadecimal), bytes]

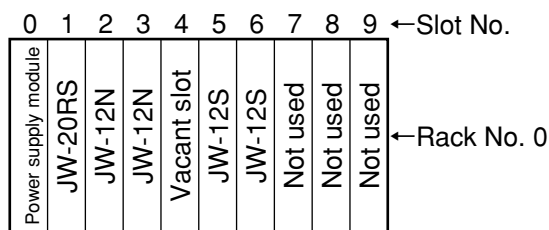
(Applied to item ③ on pages 8·20 to 22)

- Set to allocate addresses (dummy I/Os) on vacant slots in parameter address 000000 to 000017⁽⁸⁾.
- Set two slots with one byte of parameter address.

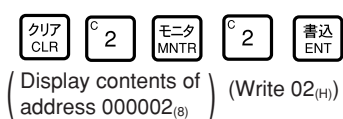
| Parameter address ⁽⁸⁾ | Rack No. 0 | | | | | | Parameter address ⁽⁸⁾ | Rack No. 1 | | | | | | | | | | | |
|----------------------------------|------------|---|---|--------|---|---|----------------------------------|------------|---|---|--------|---|--------|--------|---|---|--------|--|--|
| | 7 | 6 | 5 | 4 | 3 | 2 | | 1 | 0 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | |
| 000000 | Set to 0 | | | | | | Set to 0 | | | | | | 000010 | Slot 1 | | | Slot 0 | | |
| 000001 | Slot 3 | | | Slot 2 | | | 000011 | Slot 3 | | | Slot 2 | | | | | | | | |
| 000002 | Slot 5 | | | Slot 4 | | | 000012 | Slot 5 | | | Slot 4 | | | | | | | | |
| 000003 | Slot 7 | | | Slot 6 | | | 000013 | Slot 7 | | | Slot 6 | | | | | | | | |
| 000004 | Slot 9 | | | Slot 8 | | | 000014 | Slot 9 | | | Slot 8 | | | | | | | | |
| 000005 | Slot B | | | Slot A | | | 000015 | Slot B | | | Slot A | | | | | | | | |
| 000006 | Slot D | | | Slot C | | | 000016 | Slot D | | | Slot B | | | | | | | | |
| 000007 | Slot F | | | Slot E | | | 000017 | Slot F | | | Slot E | | | | | | | | |

| Set value ^(H) | Contnets | Set value ^(H) | Contnets |
|--------------------------|------------------------------------|--------------------------|------------------------------------|
| 0 | No dummy I/O point | 8 | 128 points of dummy I/O (16 bytes) |
| 1 | 16 points of dummy I/O (2 bytes) | 9 | 144 points of dummy I/O (18 bytes) |
| 2 | 32 points of dummy I/O (4 bytes) | A | 160 points of dummy I/O (20 bytes) |
| 3 | 48 points of dummy I/O (6 bytes) | B | 176 points of dummy I/O (22 bytes) |
| 4 | 64 points of dummy I/O (8 bytes) | C | 192 points of dummy I/O (24 bytes) |
| 5 | 80 points of dummy I/O (10 bytes) | D | 208 points of dummy I/O (26 bytes) |
| 6 | 96 points of dummy I/O (12 bytes) | E | 224 points of dummy I/O (28 bytes) |
| 7 | 112 points of dummy I/O (14 bytes) | F | 240 points of dummy I/O (30 bytes) |

Ex.: Set 32 points (4 bytes) of dummy I/O in the following vacant slots using JW-13PG.



Set number of dummy I/Os



Screen display of JW-13PG

| | | |
|----------|-----|----|
| 00000 | HEX | 00 |
| 00001 | HEX | 00 |
| I PARAM. | | |
| >00002 | HEX | 02 |

"Only when manual I/O registration using JW model I/O modules"

④ **Set type of I/O module** [HEX (hexadecimal), byte]

(Applied to item ④ on pages 8-20 to 22)

- Set types of installed I/O module in each slot and number of dummy I/O points set for vacant slot into parameter address 000100 to 000137^(B).
- Set one slot with one byte of parameter address.

| Parameter address ^(B) | Contents in rack No. 0 | Parameter address ^(B) | Contents in rack No. 1 | Set value ^(H) | Model name of the installed module |
|----------------------------------|--------------------------|----------------------------------|------------------------|--------------------------|--|
| 000100 | Set to 00 ^(H) | 000120 | Slot 0 | 91 | JW-12S, JW-13S |
| 000101 | Set to 00 ^(H) | 000121 | Slot 1 | 92 | JW-32S JW-32SC, JW-33S JW-34S, JW-35S |
| 000102 | Slot 2 | 000122 | Slot 2 | 94 | JW-62SC |
| 000103 | Slot 3 | 000123 | Slot 3 | 00 to 0F | Vacant slot 00 ↑ Lower bits are number of dummy I/O points |
| 000104 | Slot 4 | 000124 | Slot 4 | A1 | JW-11N, JW-12N JW-13N |
| 000105 | Slot 5 | 000125 | Slot 5 | A2 | JW-31N, JW-32N JW-34N, JW-34NC |
| 000106 | Slot 6 | 000126 | Slot 6 | A4 | JW-64NC |
| 000107 | Slot 7 | 000127 | Slot 7 | D1 | JW-2DA, JW-8AD JW-31LM |
| 000110 | Slot 8 | 000130 | Slot 8 | F1 | JW-2HC, JW-11DU JW-12DU |
| 000111 | Slot 9 | 000131 | Slot 9 | | |
| 000112 | Slot A | 000132 | Slot A | | |
| 000113 | Slot B | 000133 | Slot B | | |
| 000114 | Slot C | 000134 | Slot C | | |
| 000115 | Slot D | 000135 | Slot D | | |
| 000116 | Slot E | 000136 | Slot E | | |
| 000117 | Slot F | 000137 | Slot F | | |

Set 00^(H) for a slot having power supply module or slave module JW-20RS.

Ex.: Set the I/O module in the previous page using the JW-13PG

クリア CLR B 1 A 0 C 2 モニタ MNTR シフト SHIFT A 0 B 1 書込 ENT
 Display contents of address 000102^(B) Write A1^(H)

STEP (+) シフト SHIFT A 0 B 1 書込 ENT STEP (+) C 2 書込 ENT STEP (+) STEP (+) RESET 9 B 1 書込 ENT
 Write A1^(H) in address 000103^(B) Write 02^(H) in address 000104^(B) Write 91^(H) in address 000105^(B)

STEP (+) RESET 9 B 1 書込 ENT
 Write 91^(H) in address 000106^(H)

Screen display of JW-13PG

```

00104  HEX  02
00105  HEX  91
I PARAM.
>00106  HEX  91
    
```


"Only when using JW model I/O modules"

⑤ **Registration of I/O table** [HEX (hexadecimal), byte]

(Applied to item ⑤ on pages 8-20 to 22)

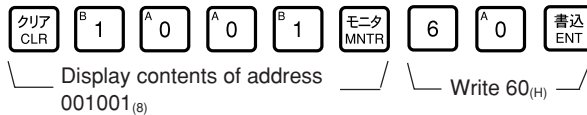
- Set in parameter address 001001₍₈₎

| Set value _(H) | Contents |
|--------------------------|--|
| 60 | Set both number of dummy I/O points and type of I/O module with operation described in page 8-25 and 26 |
| 64 | Manual setting number of dummy I/O points and automatic setting of I/O module type. |
| 65 | Number of dummy I/O points is 00 (number of dummy I/O points set by operation in page 8-25 will be 00), and set I/O module type automatically. |

When setting is complete normally, set value will be 00_(H).

- When manual I/O table registration is selected, the JW-20RS automatically registers I/O address table for each rack slot into parameter address 004000 to 004077₍₈₎. It also stores sum check code of parameter address 000000 to 000277₍₈₎ into parameter address 000300₍₈₎.

Ex.: Set number of dummy I/O points and I/O module type set in page 8-25 and 26 using the JW-13PG.



Screen display of JW-13PG

| | | |
|----------|-----|----|
| 00777 | HEX | 00 |
| 01000 | HEX | 00 |
| I PARAM. | | |
| >01001 | HEX | 60 |

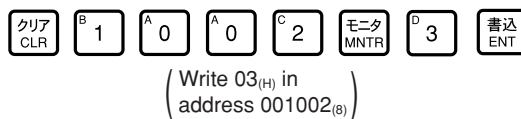
"Only when using JW model I/O module"

⑥ **Prohibit automatic registration of I/O table at inputting power** [HEX (hexadecimal), bytes]

(Applied to item ⑥ on pages 8-20 to 22)

- Set 03_(H) in parameter address 001002_(H) to prohibit "automatic registration of I/O table" during inputting power to the slave station module.

(In case of setting using the JW-13PG)



Screen display of JW-13PG

| | | |
|----------|-----|----|
| 01000 | HEX | 00 |
| 01001 | HEX | 60 |
| I PARAM. | | |
| >01002 | HEX | 03 |

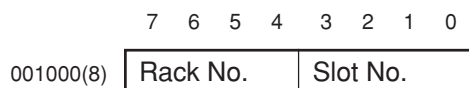
Note: If 00_(H) is set to parameter address 001002₍₈₎, the JW-20RS automatically register I/O at inputting power. If the power is reinput when an I/O module is faulty, the I/O address will automatically be registered. If the I/O module is faulty, reinput of power may register wrong I/O address. In this case use this function to prohibit wrong registration.

"Only when using JW model I/O module"

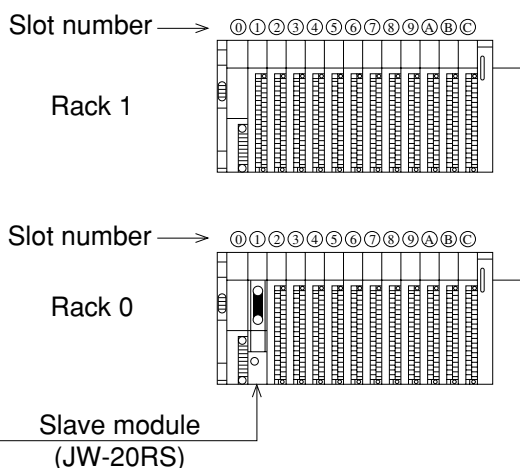
⑦ **Set maximum rack and slot numbers** [HEX (hexadecimal), bytes]

(Applied to item ⑦ on pages 8·20 to 22)

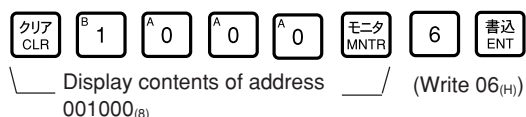
- Set maximum rack and slot numbers in parameter address 001000₍₈₎ and shorten I/O processing time.
- If this is left 00_(H) (default value), the JW-20RS processes from rack No. 1 and slot number F so that it takes approximately 8 ms.
- Set rack number in upper 4 bits and slot number in lower 4 bits.



- Maximum amount of usable racks is 2 and a rack having slave module JW-20RS is rack No. 0. Even the rack panel JW-13BU is used, number of slots will be up to "C."



Ex.: Set the configuration in page 8·25 (rack No. 0 and slot No. 6) using the JW-13PG.



Screen display of JW-13PG

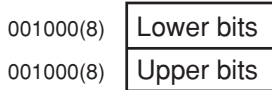
| | | |
|----------|-----|----|
| 00776 | HEX | 00 |
| 00777 | HEX | 00 |
| I PARAM. | | |
| >01000 | HEX | 06 |

"Only when using JW model I/O module"

⑧ **Setting remote I/O top address** [OCT (octal), word]

(Applied to item ⑧ on pages 8·20 to 22)

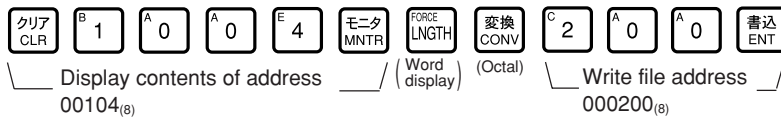
- In order to light a search module (SU) lamp, set remote I/O top address of each slave station which are allocated in the master station using file address into parameter address 001004 and 001005⁽⁸⁾.



Display on the JW-13PG

| | | |
|----------|---|--------|
| 01000 | 0 | 000006 |
| 01002 | 0 | 000003 |
| I PARAM. | | |
| >01004 | 0 | 000200 |

(When to set file address 000200(00200) using the JW-13PG)



Remarks

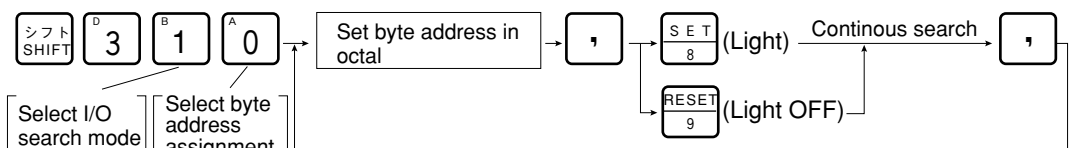
- Though input output relays, auxiliary relays etc. of the PC are allocated their byte addresses for each item, allocate the file address which are allocated throughout the memory register range.

| File address | | Byte address |
|--------------|-----------------------|--------------|
| 000000 | Input/output relays | 00000 |
| 000377 | | 00377 |
| 000400 | Auxiliary relay | 00400 |
| 000677 | | 00677 |
| 000700 | Latch relay | 00700 |
| 000777 | | 00777 |
| 001000 | General purpose relay | 01000 |
| 001577 | | 01577 |

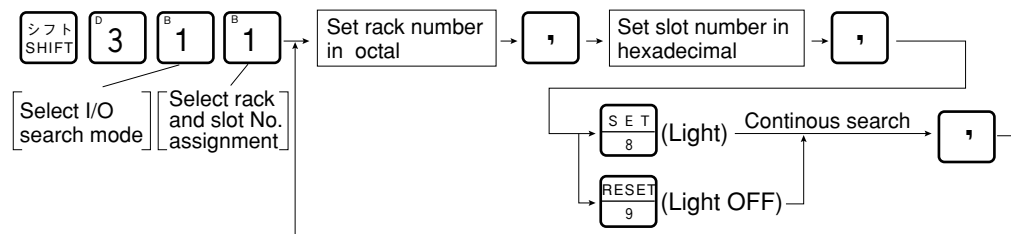
[Operation method of I/O search (slave station): In case of JW-13PG]

Connect the JW-13PG to the slave module JW-20RS in which an I/O shall be searched.

· **Assign byte address**



· **Assign rack number and slot number**



(4) Parameter setting of master module (JW-20CM)

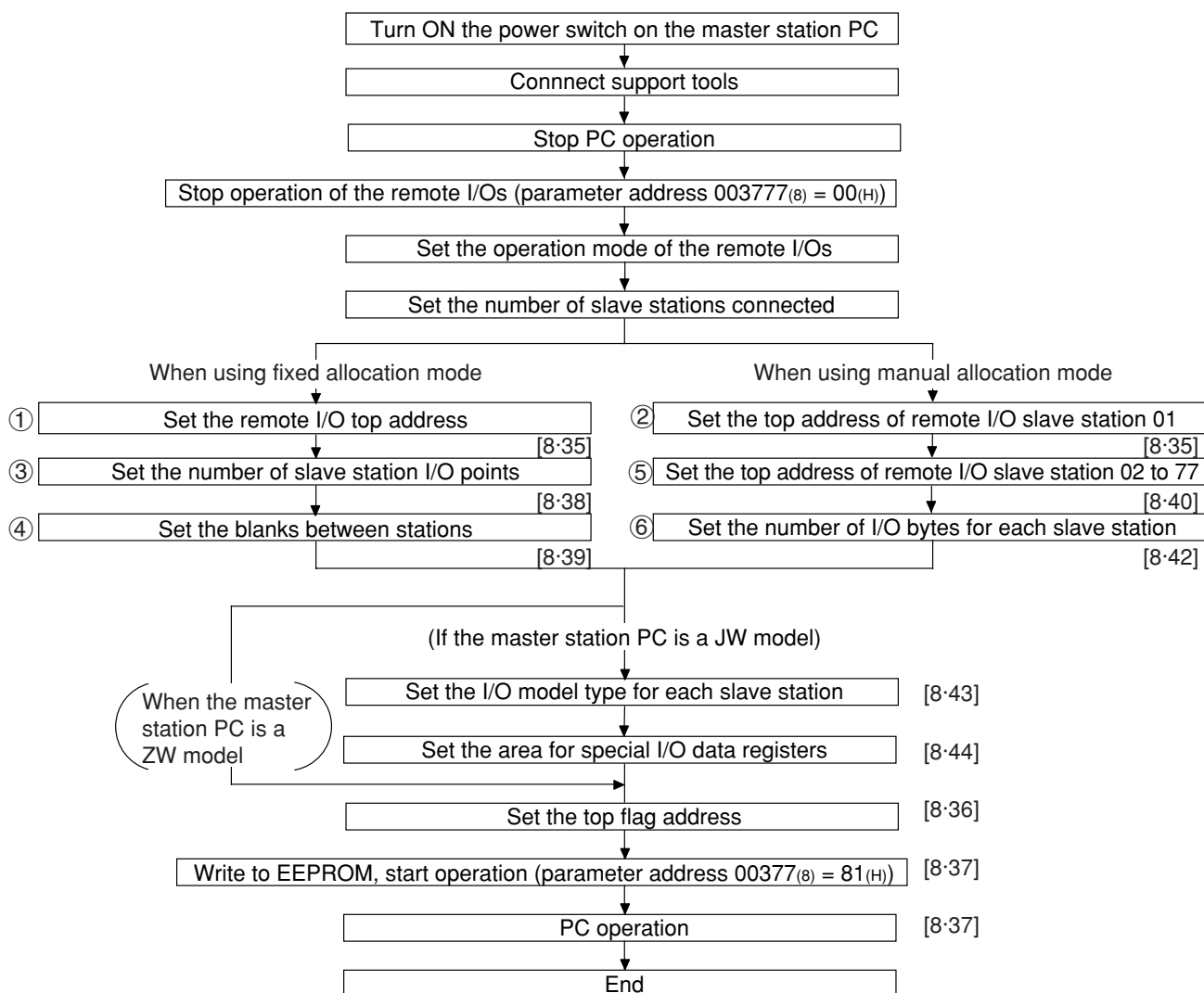
Set the following parameter address after setting switch. Setting item varies with using PC (JW model or ZW model).

O: Necessity for setting

| Item | Address (8) | Initial value (H) | Setting contents | JW-PC | | ZW-PC | | See page |
|--|------------------------|-------------------|---|--------|--------|-------|--------|----------|
| | | | | Fixed | Manual | Fixed | Manual | |
| Set remote I/O operation mode | 000000 | 00 | 001(8): Fixed allocation, asynchronous, error mode 1 002(8): Fixed allocation, asynchronous, error mode 2 004(8): Fixed allocation, synchronous, error mode 0 005(8): Fixed allocation, synchronous, error mode 1 006(8): Fixed allocation, synchronous, error mode 2 011(8): Manual allocation, asynchronous, error mode 1 012(8): Manual allocation, asynchronous, error mode 2 014(8): Manual allocation, synchronous, error mode 0 015(8): Manual allocation, synchronous, error mode 1 016(8): Manual allocation, synchronous, error mode 2 | ○ | ○ | ○ | ○ | 8· 34 |
| Set number of connected slave stations | 000001 | 00 | Set number of connected modules by decimal notation (01 to 63) | ○ | ○ | ○ | ○ | 8· 35 |
| Set remote I/O top address | 000002 000003 | 00 | Set file address by octal notation | ○ | ○ | ○ | ○ | 8· 35 |
| Enter the remote I/O top address of slave station 02 to 77 | 000004 to 000177 | 00 | Enter the file address by octal notation | — | ○ | — | ○ | 8· 40 |
| Enter the number of slave I/O points | 000200 | 00 | 00(H): 64 points (8 bytes), number of slave station; 63 01(H): 128 points (16 bytes), number of slave station; 32 | ○ | — | ○ | — | 8· 38 |
| Enter the number of I/O bytes for each slave station | 000201 to 000277 | 00 | Enter the number of bytes of each slave station in decimal notation (0 to 128) | — | ○ | — | ○ | 8· 42 |
| Set blank between stations | 000301 to 000376 | 00 | Enter the number of blank bytes between stations in decimal notation (0 to 255) | ○ | — | ○ | — | 8· 39 |
| Enter I/O type for each slave station | 000400 to 000407 | FF | Set each station in bit unit 0: ZW model I/O module 1: JW model I/O module | ○ | ○ | — | — | 8· 43 |
| Enter the data register address of the special I/O mode | 000600 to 000777 | 00 | Set using 4 bytes per module (Set slave station number, rack number, slot number, number of data bytes, and register top address.) | ○ ※ | ○ ※ | — | — | 8· 44 |
| Set top address of flag area | 003764 to 003767 | 00 | Set file address with octal notation. | ○ | ○ | ○ | ○ | 8· 36 |
| Writing to the EEPROM, start operation/stop setting | 003777 | 01 | 00(H) : Stop remote I/O operation 01(H) : Start remote I/O operation 80(H) : Writing to the EEPROM, stop operation 81(H) : Writing to the EEPROM, start operation 08(H) : Initialize the parameter | ○ | ○ | ○ | ○ | 8· 37 |

· If a special I/O module is not set in a slave station, the setting is not required.

Operation procedure

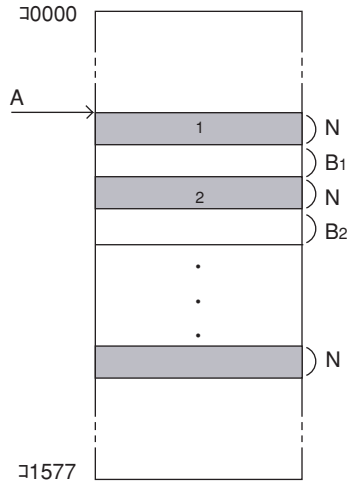


Steps ① to ⑧ correspond to the steps on pages 8-38 to 8-44.

Parameter setting range

<Fixed allocation>

· When fixed allocation is used, set parameter within the range shown below:



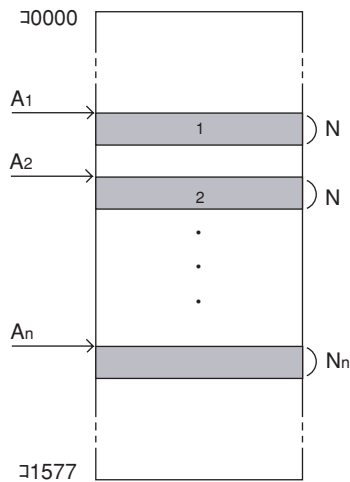
1 to n : Number of slave stations ($1 \leq n \leq 32$ or 63)
 A : Remote I/O top address
 N : Number of slave station I/O points (fixed to 64 points or 128 points)
 B₁ to B_n : Blank between stations

(Setting of JW model special I/O module)

| | |
|-------------------|---|
| Data register | 0 to 128 bytes in total per remote slave station 0 to 512 bytes in total of all stations |
| Number of modules | Up to 8 modules per remote slave station Up to 32 modules in total of all stations |

<Manual allocation>

· When the manual allocation is used, set parameter within the range shown below:



1 to n : Number of slave stations ($1 \leq n \leq 63$)
 A₁ to A_n : Remote I/O top address
 N₁ to N_n : Number of slave station I/O bytes ($0 \leq N_n \leq 128$)
 $N_1 + N_2 + \dots + N_n \leq 512$

$A_1 \leq A_2 \leq \dots \leq A_n$

(Setting of JW model special I/O module)

| | |
|-------------------|---|
| Data register | 0 to 128 bytes in total per remote slave station 0 to 512 bytes in total of all stations |
| Number of modules | Up to 8 modules per remote slave station Up to 32 modules in total of all stations |

Turn "ON" the power of master module

Connect support tools

- Connect a support tool with the JW-20CM master module and prepare the setting parameter.

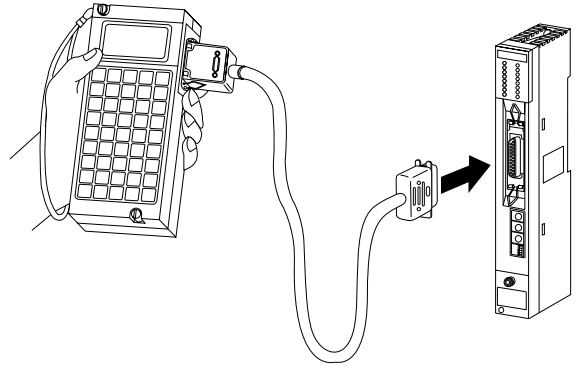
<Usable support tools>

JW-13PG/12PG

JW-50SP

JW-50PG, Z-100LP2S

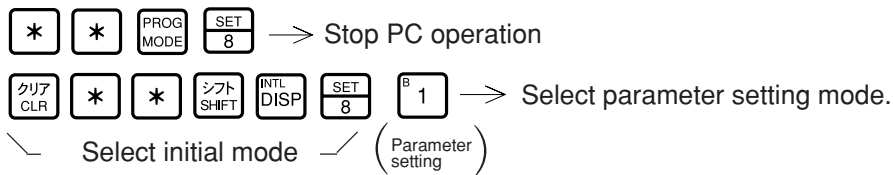
- For operation of each support tool, see the instruction manual attached. The following describes an example of JW-13PG's key operation.



Stop PC operation

- Turn to program mode (stop PC operation). Setting of parameters is only available when the PC is in program mode.

(Operation example of JW-13PG)

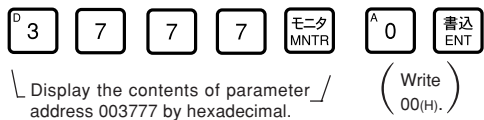


Stop operation of remote I/O

[HEX (hexadecimal), byte]

- Setting of the parameter is only available when the operation of the JW-20CM is stopped.
- Write "00_(H)" to parameter address 007777₍₈₎ and stop operation of the JW-20CM.

(Operation example of JW-13PG)



Screen display of JW-13PG

| | | |
|----------|-----|----|
| 03775 | HEX | 00 |
| 03776 | HEX | 00 |
| I PARAM. | | |
| >03777 | HEX | 00 |

Reference Function of JW-13PG

- **変換 CONV** key: Changeover unit of figures
 (→HEX (hexadecimal) → OCT (octal) → DCM (decimal) →Bit pattern)
- **PROG MODE** key: Byte display ↔ Changeover word display

To the next page

From the previous page

Set remote I/O operation mode [OCT (octal, word)]

· Set operation method of the remote I/O into parameter address 000000₍₈₎.

| Set value ₍₈₎ | Operation method | | |
|--------------------------|---|----------------------|---------------------------|
| | Operation when a slave station error occurs | Communication method | Allocation of I/O address |
| 001 | <ul style="list-style-type: none"> Remote I/O operation (communication) stops. The PC continues operation. (Mode 1) | Asynchronous | Fixed allocation |
| 002 | <ul style="list-style-type: none"> Only normal slave stations will continue operation (communication). The PC continues operation. (Mode 2) | | |
| 004 | <ul style="list-style-type: none"> Remote I/O operation (communication) stops. The PC also stops operation. (Mode 0) | Synchronous | |
| 005 | <ul style="list-style-type: none"> Remote I/O operation (communication) stops. The PC continues operation. (Mode 1) | | |
| 006 | <ul style="list-style-type: none"> Only normal slave stations will continue operation (communication). The PC continues operation. (Mode 2) | | |
| 011 | <ul style="list-style-type: none"> Remote I/O operation (communication) stops. The PC continues operation. (Mode 1) | Asynchronous | |
| 012 | <ul style="list-style-type: none"> Only normal slave stations will continue operation (communication). The PC continues operation. (Mode 2) | | |
| 014 | <ul style="list-style-type: none"> Remote I/O operation (communication) stops. The PC also stops operation. (Mode 0) | Synchronous | |
| 015 | <ul style="list-style-type: none"> Remote I/O operation (communication) stops. The PC continues operation. (Mode 1) | | |
| 016 | <ul style="list-style-type: none"> Only normal slave stations will continue operation (communication). The PC continues operation. (Mode 2) | | |

· Concerning the contents of "synchronous" and "asynchronous" communications, see page 8-4 "Communication timing."

(Set "slave station operation at error: mode 0" and "communication method: synchronous" and "address allocation: manual")

クリア CLR モニタ MNTR 変換 CONV B 1 E 4 書込 ENT
 (Display the contents of 000000₍₈₎) (After converting to octal notation, write it at 014₍₈₎.)

Screen display of JW-13PG

```

17776   OCT  000
17777   OCT  000
I PARAM.
>00000   OCT  014
  
```

To the next page

From the previous page

Set number of connected slave stations

[DCM (decimal), byte]

- Set number of connected remote I/O slave stations into parameter address 000001₍₈₎.
- Maximum number of connectable slave stations varies with setting value of I/O points per slave station.

| Number of I/O points | Number of connected modules |
|----------------------|-----------------------------|
| 64 points/station | 0 to 63 _(D) |
| 128 points/station | 0 to 32 _(D) |

Initial value: 00_(H)

(When to set 10_(D) using the JW-13PG)



→ Write setting value 10_(D) in address 000001₍₈₎ after converted into decimal notation.

Screen display of JW-13PG

| | | |
|----------|-----|-----|
| 17777 | DCM | 000 |
| 00000 | DCM | 012 |
| I PARAM. | | |
| >00001 | DCM | 010 |

"Only when using fixed allocation mode"

①

Set remote I/O top address

[OCT (octal), word]

"Only when using manual allocation mode"

②

Set remote I/O top address of slave station 01

[OCT (octal), word]

- Set remote I/O top address to parameter address 000002 and 000003₍₈₎ with file address (see page 8-32 and 13-20). (slave station 01 when free allocation is selected.).

| | | |
|-----------------------|------------|----------------------------------|
| 000002 ₍₈₎ | Lower bits | Initial value: 00 _(H) |
| 000003 ₍₈₎ | Upper bits | |

(In case of setting file address 000200(00200) using the JW-13PG)



(Word display) \ ___ After converting into octal notation, ___ / write in file address 000200₍₈₎.

Screen display of JW-13PG

| | | |
|----------|---|--------|
| 17776 | 0 | 000000 |
| 00000 | 0 | 005014 |
| I PARAM. | | |
| >00002 | 0 | 000200 |

· Set step ③ to ⑧ starting from page 8-38 with cases of fixed/manual allocation and ZW or JW series PC.

To the next page

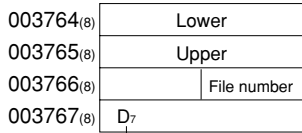
- Steps ① to ⑧ above correspond to each step in operation procedures in page 8-31.

From the previous page

Set top address of flag area

OCT (octal), word
MET (hexadecimal), byte

- Set the top address of the flag area (8 bytes) in order to monitor the communication condition and PC operation condition on the parameter address 003764 to 003767⁽⁸⁾.
- Flag area uses 8 bytes regardless number of connecting stations.

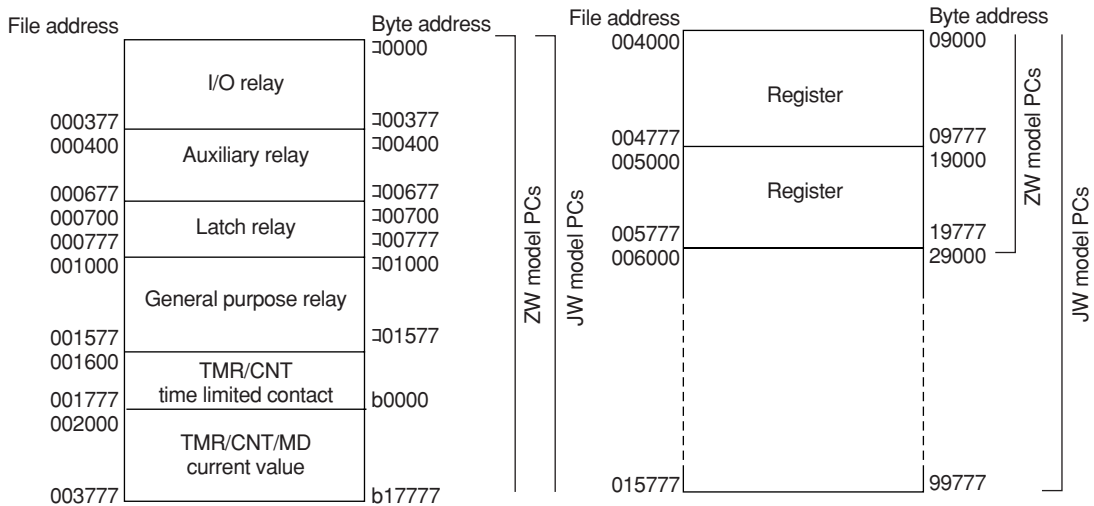


Initial value: 00_(H) for all addresses

- Output flag : ON
- Do not output flag : OFF

Remarks

- The PC's input/output relays, auxiliary relays, registers etc. are all allocated individual byte addresses for each item. However, the JW-20CM can assign these addresses with file addressees allocated throughout the memory.

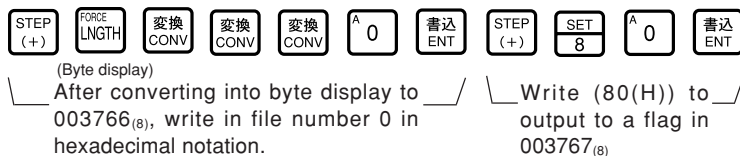
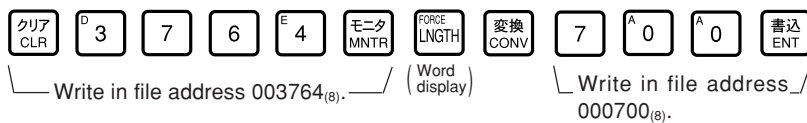


- The usable file numbers will vary with the memory module that is installed on the PC.

| Name of memory module | Usable file numbers |
|-----------------------|------------------------|
| ZW-1MA, JW-1MAH | 0 or 1※ |
| ZW-2MA, JW-2MAH | 0 or 1 |
| ZW-3MA, JW-3MAH | 0, 1, 2 |
| ZW-4MA, JW-4MAH | 0, 1, 2, 3, 4, 5, 6, 7 |

※ If file number is 1, file address shall be within 000000 to 037777⁽⁸⁾.
(See page 13·20 and 21 for other cases.)

(In case of setting file address 000700 (00700) using the JW-13PG)



Screen display of JW-13PG

| | | |
|----------|-----|----|
| 03765 | HEX | 01 |
| 03766 | HEX | 00 |
| I PARAM. | | |
| >03767 | HEX | 80 |

To the next page

From the previous page

Writing to the EEPROM of the JW-20CM, start operation

[HEX (hexadecimal), byte]

- Write “81_(H)” into parameter address 003777₍₈₎ and write the set parameter contents into the EEPROM of the JW-20CM. Then start the remote I/O operate.
- After starting operation, the setting value changes to “01_(H).”

| Setting value _(H) | Contents |
|------------------------------|--|
| 0 0 _(H) | Stop operation of the remote I/O (initial value) |
| 0 1 | · Calculate BCC of parameter addresses 000000 to 003775 ₍₈₎ . When normal, the remote I/O will start operation. When abnormal, the module will output error code BE _(H) . |
| 8 0 _(H) | ① Check the parameter contents When normal, the module calculates BCC and writes the check sum value into address 003776 ₍₈₎ . When abnormal, it outputs a BF _(H) error code. ② Changes the value to 00 _(H) (stops the operation of the remote I/O), and writes it into the EEPROM. If a write error to the EEPROM occurs, it outputs a 30 _(H) error code and keeps the value set to 80 _(H) . Writing to the EEPROM of the JW-20CM, start operation |
| 8 1 _(H) | ① Check the parameter contents When normal, the module calculates BCC and writes the check sum value into address 003776 ₍₈₎ . When abnormal, it outputs a BF _(H) error code. ② Changes the value to 01 _(H) (starts the operation of the remote I/O), and writes it into the EEPROM. If a write error to the EEPROM occurs, it outputs a 30 _(H) error code and keeps the value set to 81 _(H) . Writing to the EEPROM of the JW-20CM, start operation |
| 0 8 | Initialize setting values of parameter addresses 000000 to 003777 ₍₈₎ |

(Operation example of JW-13PG)



└ Display the contents of address 003777₍₈₎ ┘ └ Write 81_(H) ┘

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 03775 | HEX | 00 |
| 03776 | HEX | 00 |
| I PARAM. | | |
| >03777 | HEX | 01 |

PC operation

Turning a master station PC to monitor or change mode (PC operation).

(Operation example of JW-13PG)



"Only when using fixed allocation"

③ **Enter the number of slave station I/O points** [HEX (hexadecimal), bytes]

(Applied to item ③ on pages 8-31 and 8-35)

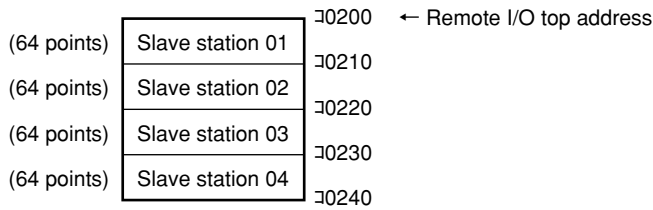
- Store the number of I/O points per slave station at parameter address 000200₍₈₎.
- The number of slave stations that can be connected varies with the setting for the number of I/O points per slave station.

| Set value | Number of I/O points | Number of modules that can be connected. |
|-------------------|----------------------|--|
| 00 _(H) | 64 points/station | 0 to 63 _(D) |
| 01 _(H) | 128 points/station | 0 to 32 _(D) |

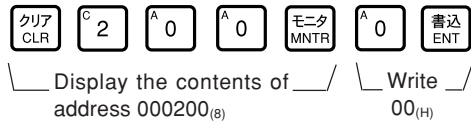
Initial value: 00_(H)

- Allocates the number of I/O points per slave station as 64 points per unit or 128 points per unit, starting from the top address set by the procedure on the previous page.

Ex.: When a remote I/O's top address is 10200 and the number of slave station I/O points is 64.



(When set for 64 points per station using the JW-13PG)



Screen display of JW-13PG

| | | |
|----------|-----|----|
| 00176 | HEX | 00 |
| 00177 | HEX | 00 |
| I PARAM. | | |
| >00200 | HEX | 00 |

"Only when using fixed allocation"

④ **Set blanks between stations**

[DCM (decimal), bytes]

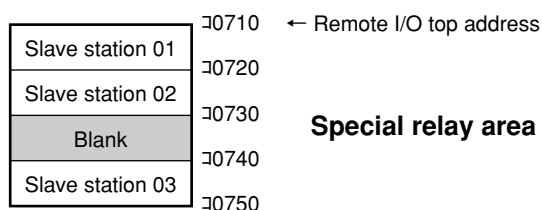
(Applied to item ④ on pages 8·31 and 8·35)

- Enter the number of blank bytes for each slave station at parameter addresses 000301 to 000376₍₈₎.
- Enter only the number of blank stations needed using 0 to 255_(D) bytes.

| Address ₍₈₎ | Stations ₍₈₎ | Address ₍₈₎ | Stations ₍₈₎ | Address ₍₈₎ | Stations ₍₈₎ | Address ₍₈₎ | Stations ₍₈₎ |
|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|
| - | - | 000320 | 20 to 21 | 000340 | 40 to 41 | 000360 | 60 to 61 |
| 000301 | 1 to 2 | 000321 | 21 to 22 | 000341 | 41 to 42 | 000361 | 61 to 62 |
| 000302 | 2 to 3 | 000322 | 22 to 23 | 000342 | 42 to 43 | 000362 | 62 to 63 |
| 000303 | 3 to 4 | 000323 | 23 to 24 | 000343 | 43 to 44 | 000363 | 63 to 64 |
| 000304 | 4 to 5 | 000324 | 24 to 25 | 000344 | 44 to 45 | 000364 | 64 to 65 |
| 000305 | 5 to 6 | 000325 | 25 to 26 | 000345 | 45 to 46 | 000365 | 65 to 66 |
| 000306 | 6 to 7 | 000326 | 26 to 27 | 000346 | 46 to 47 | 000366 | 66 to 67 |
| 000307 | 7 to 10 | 000327 | 27 to 30 | 000347 | 47 to 50 | 000367 | 67 to 70 |
| 000310 | 10 to 11 | 000330 | 30 to 31 | 000350 | 50 to 51 | 000370 | 70 to 71 |
| 000311 | 11 to 12 | 000331 | 31 to 32 | 000351 | 51 to 52 | 000371 | 71 to 72 |
| 000312 | 12 to 13 | 000332 | 32 to 33 | 000352 | 52 to 53 | 000372 | 72 to 73 |
| 000313 | 13 to 14 | 000333 | 33 to 34 | 000353 | 53 to 54 | 000373 | 73 to 74 |
| 000314 | 14 to 15 | 000334 | 34 to 35 | 000354 | 54 to 55 | 000374 | 74 to 75 |
| 000315 | 15 to 16 | 000335 | 35 to 36 | 000355 | 55 to 56 | 000375 | 75 to 76 |
| 000316 | 16 to 17 | 000336 | 36 to 37 | 000356 | 56 to 57 | 000376 | 76 to 77 |
| 000317 | 17 to 20 | 000337 | 37 to 40 | 000357 | 57 to 60 | - | - |

Initial value: 00_(H) in all addresses

Ex.: In case of setting as blanks in slave stations 2 to 3 to prevent double use of the 8 bytes in the special relay area (M730 to M737)



Display the contents of address 000302₍₈₎

 After converting to decimal notation, write it at 8_(D).

Screen display of JW-13PG

| | | |
|----------|-----|-----|
| 00300 | DCM | 000 |
| 00301 | DCM | 000 |
| I PARAM. | | |
| >00302 | DCM | 008 |

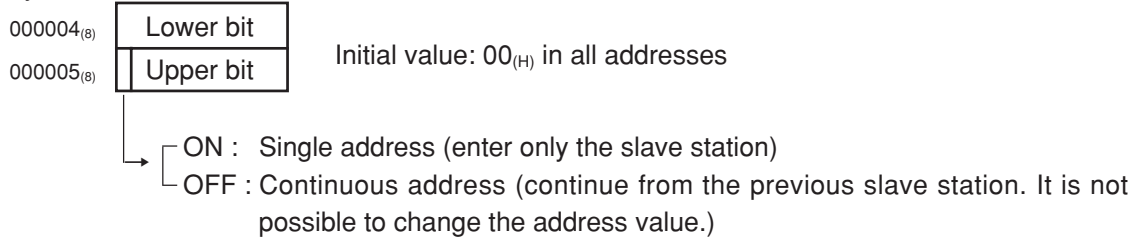
"Only when using manual allocation"

⑤ **Enter the I/O top addresses of slave stations 02 to 77**

[OCT (octal), words]

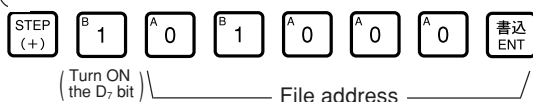
(Applied to item ⑤ on pages 8-31 and 8-35)

- Enter the remote I/O top address for each slave station at parameter addresses 000004 to 000177₍₈₎, using file addresses.
- "Single address" or "continuous address" can be selected by setting the upper bit (D₇) in the 2nd byte.



| Address (8) | Slave station number ₍₈₎ | Address (8) | Slave station number ₍₈₎ | Address (8) | Slave station number ₍₈₎ | Address (8) | Slave station number ₍₈₎ |
|----------------|--|----------------|--|----------------|--|----------------|--|
| - | - | 000040 | 20 | 000100 | 40 | 000140 | 60 |
| - | - | 000041 | 20 | 000101 | 40 | 000141 | 60 |
| - | - | 000042 | 21 | 000102 | 41 | 000142 | 61 |
| - | - | 000043 | 21 | 000103 | 41 | 000143 | 61 |
| 000004 | 02 | 000044 | 22 | 000104 | 42 | 000144 | 62 |
| 000005 | 02 | 000045 | 22 | 000105 | 42 | 000145 | 62 |
| 000006 | 03 | 000046 | 23 | 000106 | 43 | 000146 | 63 |
| 000007 | 03 | 000047 | 23 | 000107 | 43 | 000147 | 63 |
| 000010 | 04 | 000050 | 24 | 000110 | 44 | 000150 | 64 |
| 000011 | 04 | 000051 | 24 | 000111 | 44 | 000151 | 64 |
| 000012 | 05 | 000052 | 25 | 000112 | 45 | 000152 | 65 |
| 000013 | 05 | 000053 | 25 | 000113 | 45 | 000153 | 65 |
| 000014 | 06 | 000054 | 26 | 000114 | 46 | 000154 | 66 |
| 000015 | 06 | 000055 | 26 | 000115 | 46 | 000155 | 66 |
| 000016 | 07 | 000056 | 27 | 000116 | 47 | 000156 | 67 |
| 000017 | 07 | 000057 | 27 | 000117 | 47 | 000157 | 67 |
| 000020 | 10 | 000060 | 30 | 000120 | 50 | 000160 | 70 |
| 000021 | 10 | 000061 | 30 | 000121 | 50 | 000161 | 70 |
| 000022 | 11 | 000062 | 31 | 000122 | 51 | 000162 | 71 |
| 000023 | 11 | 000063 | 31 | 000123 | 51 | 000163 | 71 |
| 000024 | 12 | 000064 | 32 | 000124 | 52 | 000164 | 72 |
| 000025 | 12 | 000065 | 32 | 000125 | 52 | 000165 | 72 |
| 000026 | 13 | 000066 | 33 | 000126 | 53 | 000166 | 73 |
| 000027 | 13 | 000067 | 33 | 000127 | 53 | 000167 | 73 |
| 000030 | 14 | 000070 | 34 | 000130 | 54 | 000170 | 74 |
| 000031 | 14 | 000071 | 34 | 000131 | 54 | 000171 | 74 |
| 000032 | 15 | 000072 | 35 | 000132 | 55 | 000172 | 75 |
| 000033 | 15 | 000073 | 35 | 000133 | 55 | 000173 | 75 |
| 000034 | 16 | 000074 | 36 | 000134 | 56 | 000174 | 76 |
| 000035 | 16 | 000075 | 36 | 000135 | 56 | 000175 | 76 |
| 000036 | 17 | 000076 | 37 | 000136 | 57 | 000176 | 77 |
| 000037 | 17 | 000077 | 37 | 000137 | 57 | 000177 | 77 |

↳ Enter a single file address 001000 (≠100) at the remote I/O top address on slave station C using the JW-13PG.



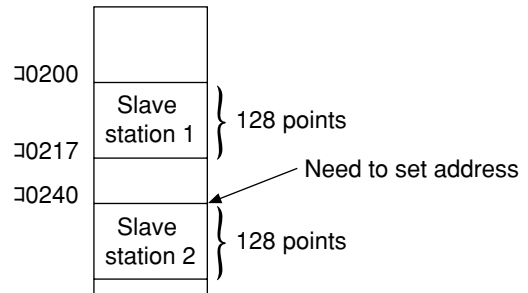
Screen display of JW-13PG

```

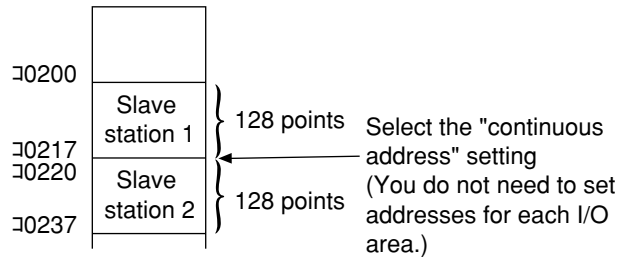
00000 0 005014
00002 0 000200
I PARAM.
>00004 0 101000
    
```

[Single address and continuous address]

- If a slave station's I/O area is not linked to the previous slave station's I/O area, this slave station should be set as a "single address slave station ."



- If a slave station's I/O area is linked to the previous slave station's I/O area, you do not have to set the address this slave station if "continuous address" is selected (turn OFF the D₇ bit in the address's upper byte).



- If "continuous address" is selected, the address changes in the previous slave station (the top I/O address in slave station 1 in the example above) will automatically changes the addresses of the linked slave stations accordingly.

If you want to disable automatic address changes, select the "single address" mode, even if the slave station address is in a continuous series with the previous slave station addresses. Then enter the address of the slave station manually.

"Only when using manual allocation "

⑥ Enter the number of I/O bytes for each slave station [DCM (decimal), byte]

(Applied to item ⑥ on pages 8-31 and 8-35)

- Enter the number of I/O bytes per slave station at parameter addresses 000201 to 000277⁽⁸⁾.
- Enter the number of I/O bytes per slave station (1 to 128 bytes) in decimal notation. Entering a value greater than 128 is treated as an error.

| Address (8) | Slave station number ⁽⁸⁾ | Address (8) | Slave station number ⁽⁸⁾ | Address (8) | Slave station number ⁽⁸⁾ | Address (8) | Slave station number ⁽⁸⁾ |
|----------------|--|----------------|--|----------------|--|----------------|--|
| - | - | 000220 | 20 | 000240 | 40 | 000260 | 60 |
| 000201 | 01 | 000221 | 21 | 000241 | 41 | 000261 | 61 |
| 000202 | 02 | 000222 | 22 | 000242 | 42 | 000262 | 62 |
| 000203 | 03 | 000223 | 23 | 000243 | 43 | 000263 | 63 |
| 000204 | 04 | 000224 | 24 | 000244 | 44 | 000264 | 64 |
| 000205 | 05 | 000225 | 25 | 000245 | 45 | 000265 | 65 |
| 000206 | 06 | 000226 | 26 | 000246 | 46 | 000266 | 66 |
| 000207 | 07 | 000227 | 27 | 000247 | 47 | 000267 | 67 |
| 000210 | 10 | 000230 | 30 | 000250 | 50 | 000270 | 70 |
| 000211 | 11 | 000231 | 31 | 000251 | 51 | 000271 | 71 |
| 000212 | 12 | 000232 | 32 | 000252 | 52 | 000272 | 72 |
| 000213 | 13 | 000233 | 33 | 000253 | 53 | 000273 | 73 |
| 000214 | 14 | 000234 | 34 | 000254 | 54 | 000274 | 74 |
| 000215 | 15 | 000235 | 35 | 000255 | 55 | 000275 | 75 |
| 000216 | 16 | 000236 | 36 | 000256 | 56 | 000276 | 76 |
| 000217 | 17 | 000237 | 37 | 000257 | 57 | 000277 | 77 |

Initial value: 00_(H) in all addresses

(Ex. Assign 8 bytes (64 points) to slave station 01 and 10 bytes (80 points) to slave station 02 using the JW-13PG.)



Display the contents of address 000201₍₈₎

(After converting into decimal notation, write the result in 8_(D).)



Write 10_(D) at address 000202₍₈₎.

Screen display of JW-13PG

```

00200   DCM   000
00201   DCM   008
I PARAM.
>00202   DCM   010
    
```


"Only when the master station is a JW model"

⑦ **Enter the I/O type for each slave station** [Bit pattern, bytes]

(Applied to item ⑦ on pages 8-31 and 8-35)

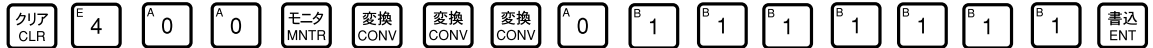
- Declare whether the I/O module installed in each slave station (01 to 77₍₈₎) is a "JW model" or a "ZW model" at parameter address 000400 to 000407₍₈₎.
- Set the bit corresponding each slave station to 0 (OFF) if it is a ZW model, or 1 (ON) if it is a JW model.

| Set value | Enter the value of the I/O type |
|-----------|---------------------------------|
| 0 (OFF) | ZW model |
| 1 (ON) | JW model |

| Parameter addresses ₍₈₎ | Corresponding to the slave station number ₍₈₎ | | | | | | | |
|------------------------------------|--|----|----|----|----|----|----|----|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 000400 | 07 | 06 | 05 | 04 | 03 | 02 | 01 | - |
| 000401 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 |
| 000402 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 |
| 000403 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 |
| 000404 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 |
| 000405 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 |
| 000406 | 67 | 66 | 65 | 64 | 63 | 62 | 61 | 60 |
| 000407 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 |

Initial value: FF_(H) in all addresses

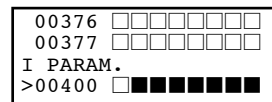
Ex. Make slave station 07 a "ZW model" and all the other slave stations JW models, using the JW-13PG.



Display the contents of address 000400₍₈₎

Write a 0 in bit 7 (slave station 07) after converting to bit pattern

Screen display of JW-13PG



"Only when the master station PC is a JW model and a JW model special I/O module is used as a slave station"

⑧ **Enter the data register address of the special I/O module**

(Applied to item ⑧ on pages 8-31 and 8-35)

Station number: OCT (octal), bytes
Rack and slot numbers: HEX (hexadecimal), bytes
Number of data bytes: DCM (decimal), bytes
Register top address: OCT (octal), bytes

- Since the special I/O module uses an I/O relay area and a data memory area, you have to enter slave station numbers, rack/slot numbers, the number of data bytes, and the top register addresses of the slave station which contains the special I/O module at parameter address 000600 to 000777₍₈₎.
- Use 4 bytes of memory to assign one special I/O module.

| Parameter address ₍₈₎ | Set contents | Special I/O number |
|----------------------------------|--|--------------------|
| 000600 | Slave station number (00 to 77 ₍₈₎) | No.1 |
| 000601 | Upper 4 bits: Rack number (0 or 1) Lower 4 bits: Slot number (00 to 0F _(H)) | |
| 000602 | Number of data bytes (01 to 64 _(D)) | |
| 000603 | Top register address (file address) D7 bit: 1 for set, 0 for not set. | |
| to | to | to |
| 000774 | Slave station number (00 to 77 ₍₈₎) | No.32 |
| 000775 | Upper 4 bits: Rack number (0 or 1) Lower 4 bits: Slot number (00 to 0F _(H)) | |
| 000776 | Number of data bytes (01 to 64 _(D)) | |
| 000777 | Top register address (file address) D7 bit: 1 for set, 0 for not set. | |

Initial value: 00_(H) in all addresses

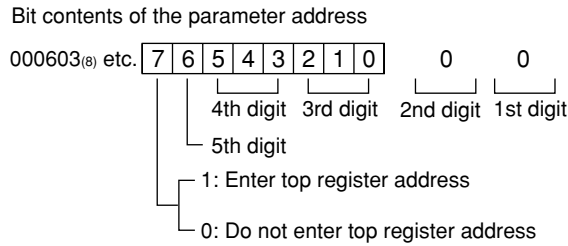
■ **Number of data bytes**

Enter the number of bytes that the special I/O module uses for data exchange. A maximum of 128 bytes can be assigned per station. A maximum of 512 bytes can be assigned to all stations.

| Special I/O module model name | Number of data bytes |
|-----------------------------------|----------------------|
| JW-8AD (analog input) | 36 bytes |
| JW-2DA (analog output) | 8 bytes |
| JW-2HC (high speed counter) | 8 bytes |
| JW-31LM (I/O link master station) | 2 to 6 bytes |
| JW-11DU/12DU (ID control module) | 64 bytes max. |
| JW-12PM (positioning module) | 16 bytes |

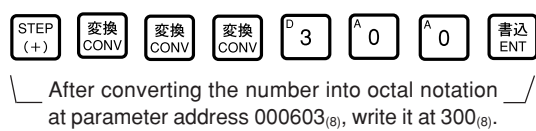
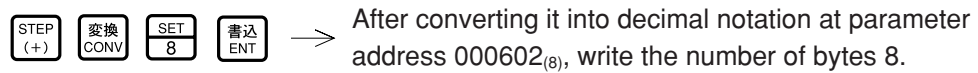
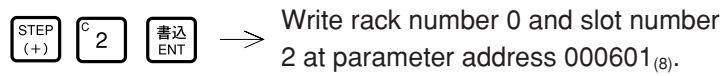
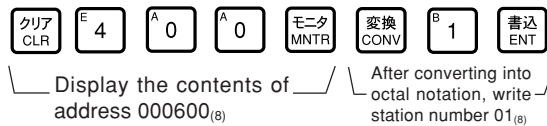
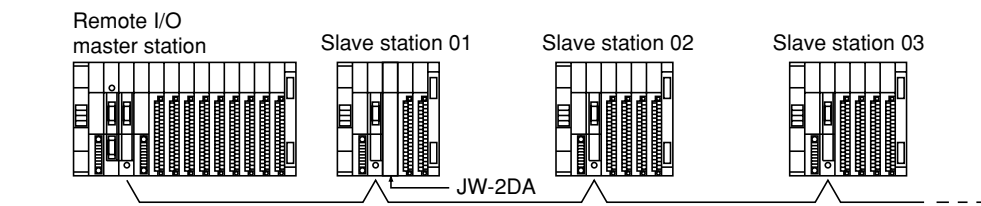
■ Top register address

Enter top address of each special I/O module, which can be allocated up to 64 points per unit, at file addresses 000000 to 017700₍₈₎.



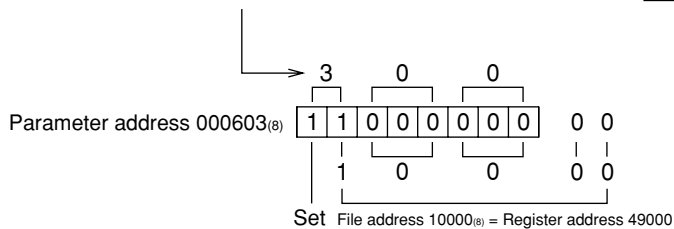
Lower 2 digits are always 00.

Ex.: Set a JW-2DA (8 data bytes and a top register address of 490000) installed in "slave station number 01," "rack number 0," "slot number 2" and assigned as No. 1 (1st module) using the JW-13PG.



Screen display of JW-13PG

| | | |
|----------|-----|-----|
| 00601 | OCT | 003 |
| 00602 | OCT | 010 |
| I PARAM. | | |
| >00603 | OCT | 300 |

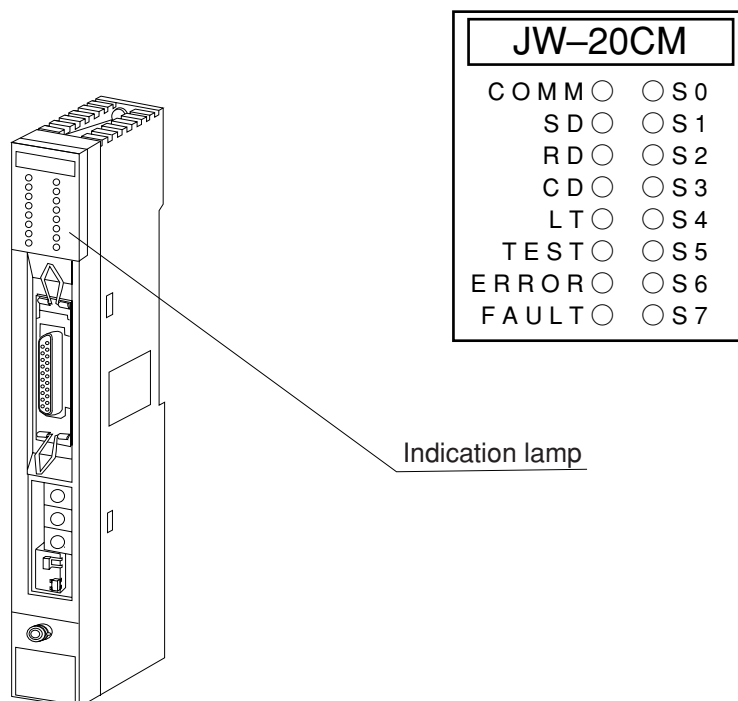


8-4 Error and treatment

Operation status of the JW-20CM can be check by indication lamps, flags, or system memory.

(1) Indication lamp

① JW-20CM



8

| Name | Operation | Recovery |
|----------|--|--|
| COMM | Lights while the remote I/O is operating | _____ |
| SD | Flickers while sending data | _____ |
| RD | Flickers while receiving data | _____ |
| CD | Flickers while detecting a carrier | _____ |
| LT | Lights when the termination resistance switches turned ON | _____ |
| TEST | Lights while testing | _____ |
| ERROR | Lights while an error is detected (Indicate error code by S0 to S7 LEDs) | <ul style="list-style-type: none"> · Check disconnection of communication cable · Check settings of switches · Check settings of parameter · Check power supply voltage. |
| FAULT | Lights when the watchdog timer is time up (JW-20CM is faulty) | Replace the JW-20CM |
| S0 to S7 | Indicates error codes by hexadecimal when an error is occurred | See the next page |

(Error code)

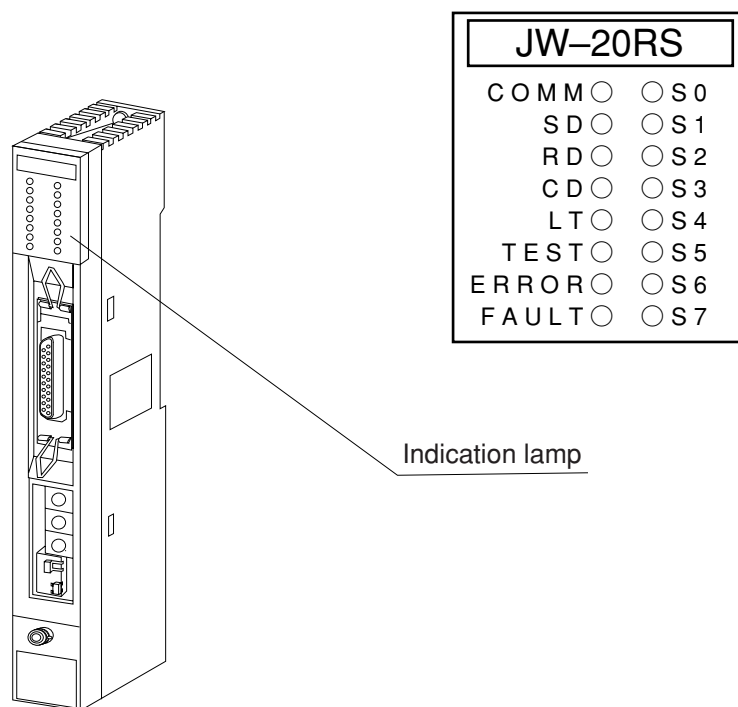
| LED name | | | | | | | | Error code (HEX) | Cause | Measure |
|----------|---|---|---|---|---|---|----|--------------------|--|--|
| S7 | 6 | 5 | 4 | 3 | 2 | 1 | S0 | | | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | 01 _(H) | ROM error, upper CPU | Replace the JW-20CM |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | 02 _(H) | RAM error, upper CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ● | ● | 03 _(H) | 2 port RAM error against PC, upper CPU | |
| ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ | 04 _(H) | 2 port RAM error against communication CPU, upper CPU | |
| ○ | ○ | ○ | ● | ○ | ○ | ○ | ● | 11 _(H) | ROM error, communication CPU | <ul style="list-style-type: none"> • Check the communication cable • Check for doubled allocation of slave station number • Replace the JW-20CM |
| ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | 12 _(H) | RAM error, communication CPU | |
| ○ | ○ | ○ | ● | ● | ○ | ○ | ○ | 18 _(H) | Communication LSI error, communication CPU | |
| ○ | ○ | ○ | ● | ● | ● | ○ | ○ | 1F _(H) | No response, communication CPU | |
| ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | 20 _(H) | More than one token detected | Check the parameter setting and switch setting. |
| ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | 21 _(H) | Doubled address detected | <ul style="list-style-type: none"> • Replace the JW-20CM • Check the communication cable |
| ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | 22 _(H) | Fault of sending section | |
| ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | 23 _(H) | Token does not return within the rated interval | |
| ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | 2A _(H) | Overflow of receiving buffer. Occurs when the upper CPU processing is delayed. | Check the communication cable |
| ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | 2B _(H) | Flame length error | |
| ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | 2C _(H) | Media error | |
| ○ | ○ | ● | ○ | ○ | ○ | ○ | ○ | 30 _(H) | EEPROM error | <ul style="list-style-type: none"> • Check the communication cable • Replace the JW-20CM |
| ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | BE _(H) | BCC error | Check the parameter contents. |
| ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | BF _(H) | Parameter setting error | |
| ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | *C1 _(H) | Communication error | Check the communication cable and slave module |
| to | | | | | | | | to | <ul style="list-style-type: none"> • After converting into octal, the lower two digits represent the slave station number of the current error. (Ex. 01_(H) = 301₍₈₎ = slave station 01) | |
| ● | ● | ● | ● | ● | ● | ● | ● | *FF _(H) | | |

● : ON, ○ : OFF

Remarks

- Error codes “23” and “2A_(H)” may occur when applying power. This is not an error.
- To check the communication cable, remove both connectors and short the connector terminals at one end. Then measure the conductivity using a tester.
- Check the parameter and switch settings for all stations. If the settings are correct, replace the JW-20CM or JW-20RS.

② JW-20RS



8

| Name | Operation | Recovery |
|----------|--|--|
| COMM | Lights while the remote I/O is operating | _____ |
| SD | Flickers while sending data | _____ |
| RD | Flickers while receiving data | _____ |
| CD | Flickers while detecting a carrier | _____ |
| LT | Lights when the termination resistance switches turned ON | _____ |
| TEST | Lights while testing | _____ |
| ERROR | Lights while an error is detected (Indicate error code by S0 to S7 LEDs) | <ul style="list-style-type: none"> · Check disconnection of communication cable · Check settings of switches · Check settings of parameter · Check power supply voltage. |
| FAULT | Lights when the watchdog timer is time up (JW-20RS is faulty) | Replace the JW-20RS |
| S0 to S7 | Indicates error codes by hexadecimal when an error is occurred | See the next page |

(Error code)

| LED name | | | | | | | | Error code (HEX) | Cause | Measure |
|----------|---|---|---|---|---|---|----|-------------------|---|--|
| S7 | 6 | 5 | 4 | 3 | 2 | 1 | S0 | | | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | 01 _(H) | ROM error, upper CPU | Replace the JW-20RS |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | 02 _(H) | RAM error, upper CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | 03 _(H) | 2 port RAM error against PC, upper CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | 04 _(H) | 2 port RAM error against communication CPU, upper CPU | |
| ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | 11 _(H) | ROM error, communication CPU | <ul style="list-style-type: none"> • Check the communication cable • Check for doubled allocation of slave station number • Replace the JW-20RS |
| ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ | 13 _(H) | RAM error, communication CPU | |
| ○ | ○ | ○ | ● | ● | ○ | ○ | ○ | 18 _(H) | Communication LSI error, communication CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 20 _(H) | More than one token detected | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 21 _(H) | Doubled address detected | Replace the JW-20RS |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 22 _(H) | Fault of sending section | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 23 _(H) | Token does not return within the rated interval | <ul style="list-style-type: none"> • Check the communication cable • Replace the JW-20RS |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2A _(H) | Overflow of receiving buffer. Occurs when the upper CPU processing is delayed. | Check the communication cable |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2B _(H) | Flame length error | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2C _(H) | Media error | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2E _(H) | Synchronization between master and slave station is deviated | <ul style="list-style-type: none"> • Reinput the power • Decrease load of slave station |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 30 _(H) | EEPROM error | <ul style="list-style-type: none"> • Check the communication cable • Replace the JW-20RS |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 90 _(H) | I/O bus error | <ul style="list-style-type: none"> • Check I/O module, option cables |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 91 _(H) | I/O signal error | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 92 _(H) | Mismatch number of I/O points | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 93 _(H) | Interrupted data from master station | Check the communication cable and master module |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 94 _(H) | Defected power failure at I/O processing | Check power supply |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 95 _(H) | Master station PC error | Check master station PC, master module, or communication cable |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 9E _(H) | BCC error | Check parameter contents |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 9F _(H) | Parameter setting error | |

● : ON, ○ : OFF

Remarks

- Error codes “23” and “2A_(H)” may occur when applying power. This is not an error.
- To check the communication cable, remove both connectors and short the connector terminals at one end. Then measure the conductivity using a tester.
- Check the parameter and switch settings for all stations. If the settings are correct, replace the JW-20CM or JW-20RS.

(I/O error code of JW model)

| LED name | | | | | | | | Error code (HEX) | Cause | Measure |
|----------|----|----|----|---|---|---|---|-------------------|------------------------------|---|
| 80 | 40 | 20 | 10 | 8 | 4 | 2 | 1 | | | |
| ● | ○ | ○ | ● | ○ | ● | ● | ● | 97 _(H) | I/O table error | Register I/O table Replace the JW-20RS |
| ● | ○ | ○ | ● | ● | ○ | ○ | ○ | 98 _(H) | Input data parity error | Replace basic rack panel, extension cable, I/O module, or register I/O table. |
| ● | ○ | ○ | ● | ● | ○ | ○ | ● | 99 _(H) | Output data error | |
| ● | ○ | ○ | ● | ● | ○ | ● | ○ | 9A _(H) | I/O table registration error | |
| ● | ○ | ○ | ● | ● | ○ | ● | ● | 9B _(H) | Special I/O module error | |
| ● | ○ | ○ | ● | ● | ○ | ○ | ○ | 9C _(H) | Blown fuse | |

- When error numbers 98 through 9C_(H) occur, the module will store “rack No.” and “slot No.” in the parameter address 005000₍₈₎ in the JW-20RS.

Parameter address D7 D6 D5 D4 D3 D2 D1 D0

| | | |
|-----------------------|----------|----------|
| 005000 ₍₈₎ | Rack No. | Slot No. |
|-----------------------|----------|----------|

When more than one module has an error, the lowest “rack No.” and “slot No.” will be stored.

- A special I/O module error (9B_(H)) can be detected by the JW-2DA/8AD/11DU/12DU/12PM. When the JW-2DA/12PM detects this error, you can also assume that there is a problem in the 24 V power supply.
- A fuse blown error (9C_(H)) can be detected by JW-12S/13S/32S/33S/35S.

If the error cannot be eliminated after replacing the module in which the error occurred, check the modules in the JW-20RS and then in the rack panel.

③ PC body and JW-20CM, JW-20RS

The operating status of the remote master station and slave stations will vary according to the operation, stop, error, and power failure conditions in the PC as follows. For output hold switch in detail, see page 8-15

●: Light ON, ⊗: Blinks, No mark: Lights OFF

| PC body operational condition | Power supply module | | PC body | | | | JW-20CM Indication lamps | | | | | | | |
|-------------------------------|---------------------|------------------|---------------|-------------|------------|----------------------------|--------------------------|----|----|----|-------|------|-------|----------|
| | Halt output HALT | Power lamp POWER | Indicator | | Flag relay | System memory #170 to #177 | COMM | SD | RD | CD | ERROR | TEST | FAULT | So to S7 |
| | | | Operating RUN | Error FAULT | | | | | | | | | | |
| Operating at normal | Close | ● | ● | | ON | Hold | ● | ⊗ | ⊗ | ⊗ | | | | |
| Stop at normal | Open | ● | ⊗ | | ON | Hold | ● | ⊗ | ⊗ | ⊗ | | | | |
| Error | Open | ● | | ● | Not fixed | Hold | ● | ⊗ | ⊗ | ⊗ | ● | | | |
| Remote master station error | Open | ● | | ● | Not fixed | Hold | ● | | | | | | ● | |

| PC body operational condition | Power supply module | | JW-20RS Indication lamps | | | | | | | | | | | |
|-------------------------------|---------------------|------------------|----------------------------|--------------------------|--|---|------|-----------|----|----|-------|------|------------|----------|
| | Halt output HALT | Power lamp POWER | Condition of output module | | | | COMM | SD | RD | CD | ERROR | TEST | FAULT | So to S7 |
| | | | Output hold switch “HOLD” | Output hold switch “RST” | | | | | | | | | | |
| Operating at normal | Close | ● | — | — | | ● | ⊗ | ⊗ | ⊗ | | | | | |
| Stop at normal | Open | ● | Hold | Reset | | | ⊗ | ⊗ | ⊗ | | | ● | ※ | |
| Error | Open | ● | Reset | Reset | | | ⊗ | ⊗ | ⊗ | ● | | ● | Error code | |
| Remote master station error | Open | ● | Reset | Reset | | | | Not fixed | | ● | | ● | Error code | |
| PC power in OFF | Open | ● | Reset | Reset | | | | Not Fixed | | ● | | ● | Error code | |

※ When the JW-20RS fault lamp is lit and no error code is displayed, it might be the case that the PC has stopped operation (in the program mode).

(2) Flag

Flag area is 8 bytes from the “flag top address” set in the master station JW-20CM parameter, monitor communication condition.

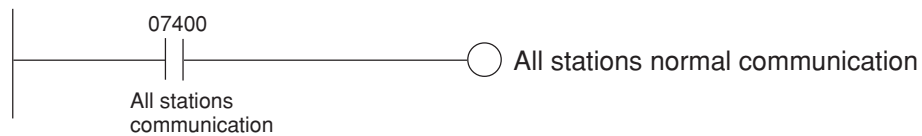
Example: In this case the flag top address is file address 000740₍₈₎ (≡0740)

| | D 7 | D 6 | D 5 | D 4 | D 3 | D 2 | D 1 | D 0 | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|--|
| ≡0740 | 0 7 | 0 6 | 0 5 | 0 4 | 0 3 | 0 2 | 0 1 | | All stations communication |
| ≡0741 | 1 7 | 1 6 | 1 5 | 1 4 | 1 3 | 1 2 | 1 1 | 1 0 | |
| ≡0742 | 2 7 | 2 6 | 2 5 | 2 4 | 2 3 | 2 2 | 2 1 | 2 0 | |
| ≡0743 | 3 7 | 3 6 | 3 5 | 3 4 | 3 3 | 3 2 | 3 1 | 3 0 | Communication condition with slave station 10 ₍₈₎ |
| ≡0744 | 4 7 | 4 6 | 4 5 | 4 4 | 4 3 | 4 2 | 4 1 | 4 0 | |
| ≡0745 | 5 7 | 5 6 | 5 5 | 5 4 | 5 3 | 5 2 | 5 1 | 5 0 | |
| ≡0746 | 6 7 | 6 6 | 6 5 | 6 4 | 6 3 | 6 2 | 6 1 | 6 0 | |
| ≡0747 | 7 7 | 7 6 | 7 5 | 7 4 | 7 3 | 7 2 | 7 1 | 7 0 | Communication condition with slave station 70 ₍₈₎ |

Communication condition with slave station 77₍₈₎

① All stations communication flag

When the master module JW-20CM is communicating normally with the preset number of slave stations, this flag will be ON.



② Individual communication flag

The flags corresponding to the slave stations, which are communicating normally with the master module JW-20CM will be ON.



(3) Error code

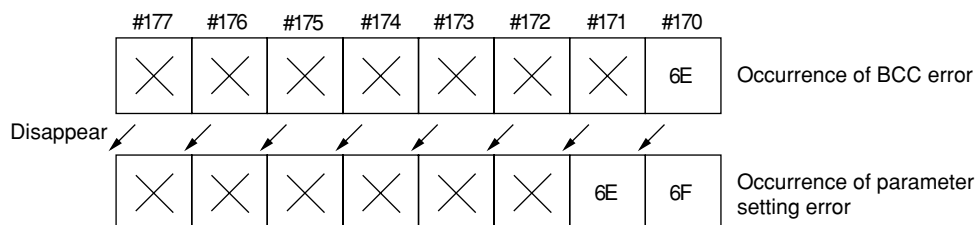
When an error occurs in the JW-20CM, it stores the occurred error's code to system memory #170 of each station's PC.

| Error code (HEX) | Cause | Error code stored to system memory | | Measure |
|------------------|---|------------------------------------|--|---|
| | | #160 | #170 | |
| 01 | ROM error, upper CPU | 53 _(H) | — | Replace the JW-20CM • Check the communication cable • Check for doubled allocation of slave station number • Replace the JW-20CM |
| 02 | RAM error, upper CPU | | | |
| 03 | 2 port RAM error against PC, upper CPU | | | |
| 04 | 2 port RAM error against communication CPU, upper CPU | | | |
| 11 | ROM error, communication CPU | | | |
| 12 | RAM error, communication CPU | | | |
| 18 | Communication LSI error, communication CPU | | | |
| 1F | No response | — | 1F _(H) | |
| 20 | More than one token detected | — | 20 _(H) | Check the parameter setting and switch |
| 21 | Doubled address detected | — | 21 _(H) | |
| 22 | Fault of sending section | — | 22 _(H) | |
| 23 | Token does not return within the rated interval | — | 23 _(H) | Replace the JW-20CM |
| 2A | Overflow of receiving buffer. Occurs when the upper CPU processing is delayed. | — | 2A _(H) | Check the communication cable |
| 2B | Flame length error | — | 2B _(H) | Check the communication cable |
| 2C | Media error | — | 2C _(H) | Replace the JW-20CM |
| 30 | EEPROM error | — | 30 _(H) | Replace the JW-20CM |
| BE | BCC error | — | BE _(H) | Check the switch setting |
| BF | Parameter setting error | — | BF _(H) | |
| C1 to FF | Communication error • After converting into octal, the lower two digits represent the slave station number of the current error. (Ex. C1 _(H) = 301 ₍₈₎ = slave station 01) | — | C1 _(H) to FF _(H) | Check the communication cable and slave module |

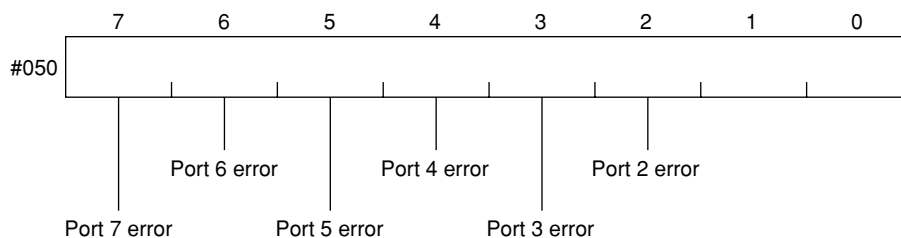
- In some cases, error code 23_(H) or 2A_(H) is stored when inputting power. This is not an error.

Remarks

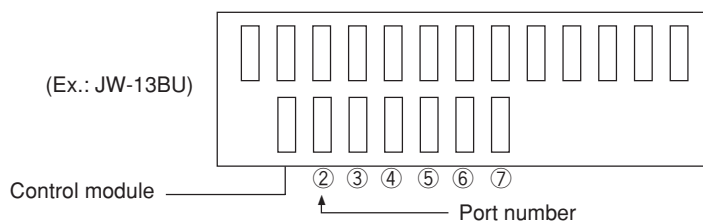
- The error code stored in the system memory #170 is shifted to #170 to #177 one after the other as new errors occur. Thus, the system memory can store up to 8 errors. When the PC is operating by RAM, these error codes do not disappear even after turning OFF the power. The contents of system memory #170 to #177 are kept storing after the JW-20CM recovers from the error.



- When any of errors "01_(H)" to "18_(H)" occurs among the error codes listed on the previous page, the JW-20CM stores error code "53_(H)" (optional error) in the system memory #160. It does not store any error code in system memory #170.
- In the case of an option error "53," when you monitor system memory #050, the bit of error option module switches ON. When more than 1 bit is error, these bits switch ON. The each ON bit becomes OFF by recovering from the error condition. But the last ON bit does not become OFF even if the error condition recovers.

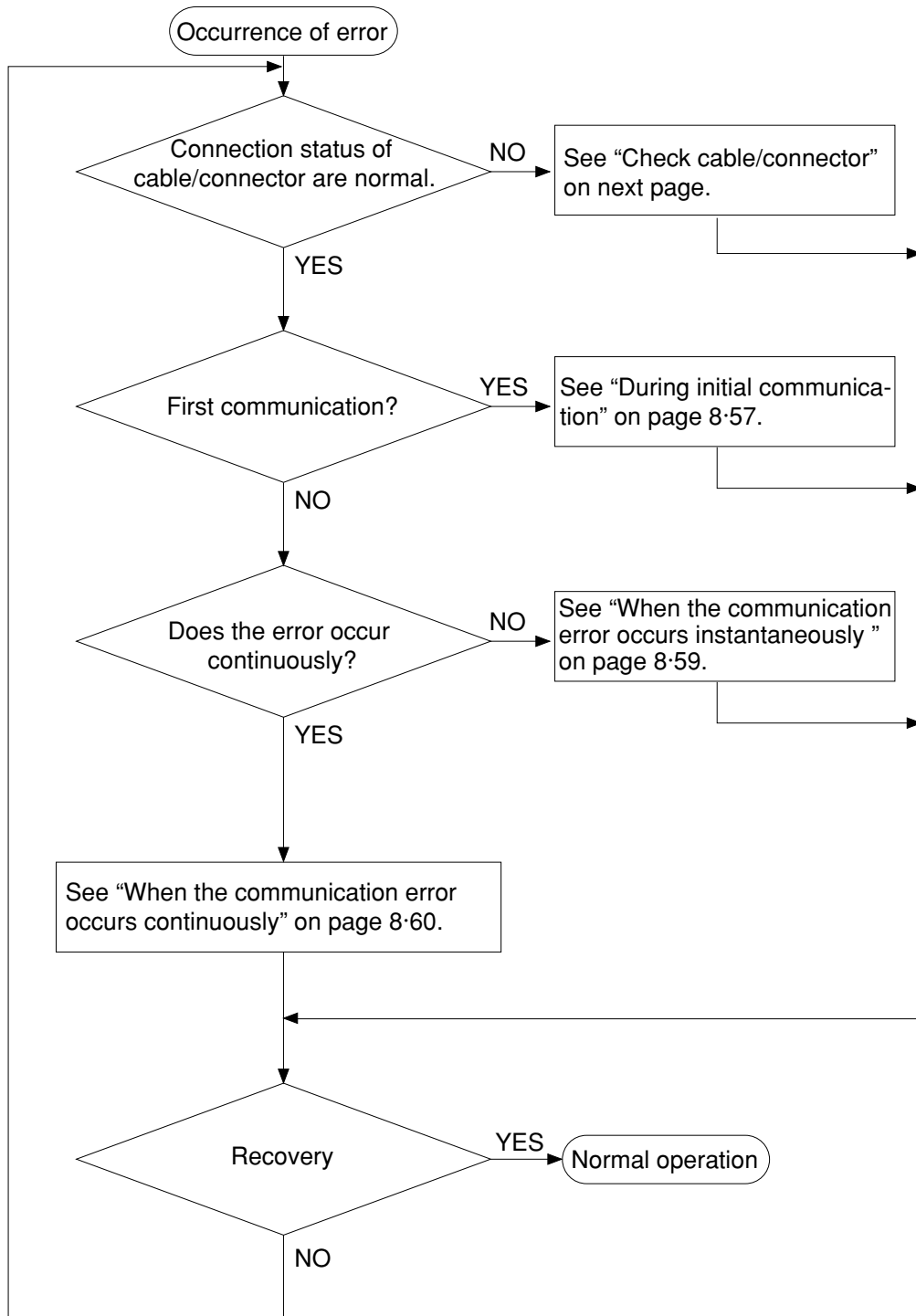


- The option slot port numbers are assigned in the order 2, 3, 4, 5, 6, 7, and so on, starting from the position closet to the control module.



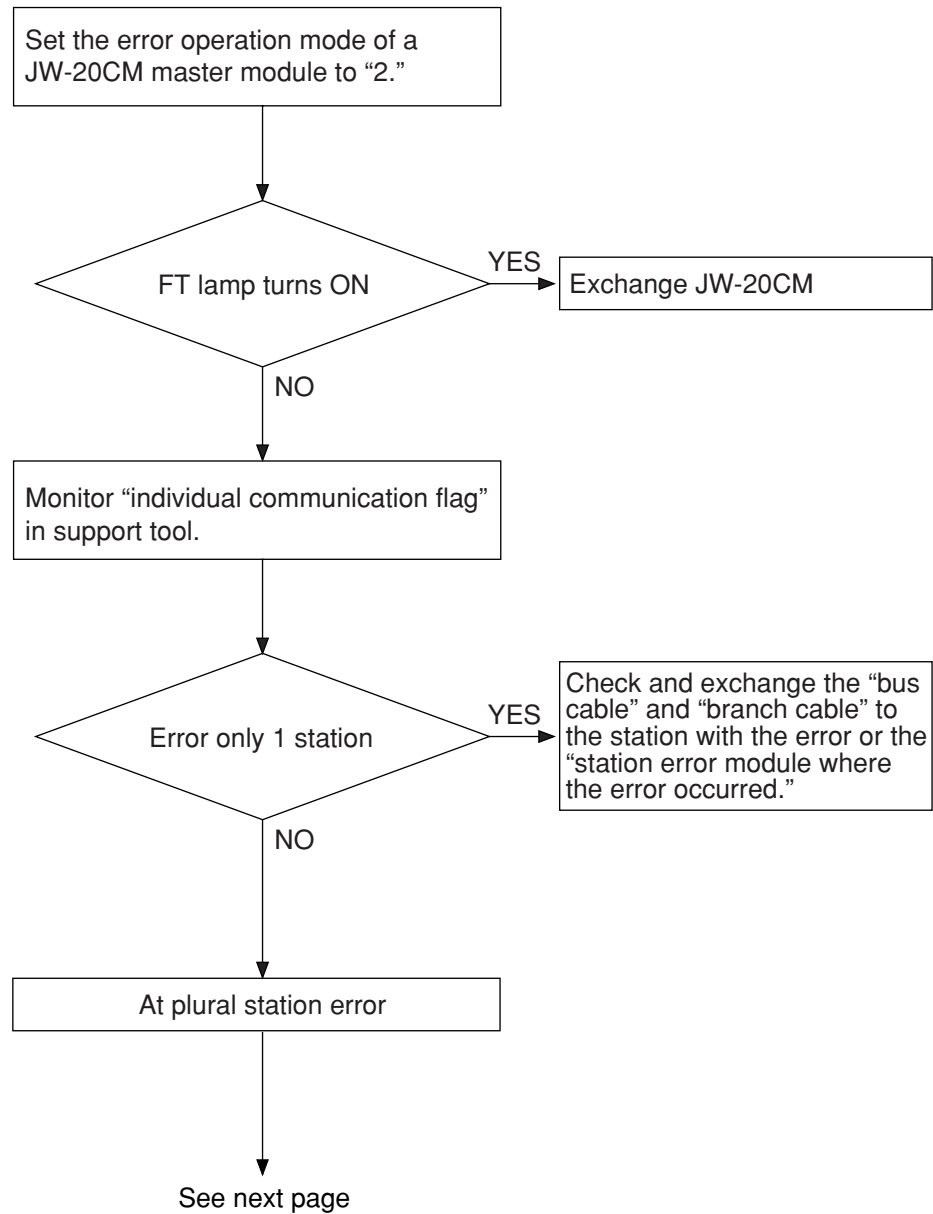
(4) Recovery method at communication errors

① Check flow chart

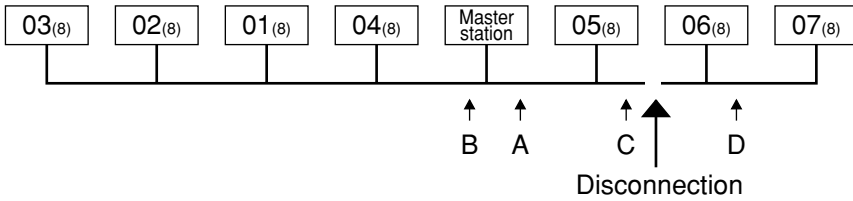


② **Check cable/connector**

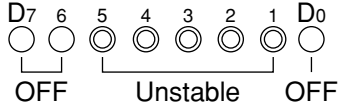
As errors on the junction from the main cable to the drop cable or the contact failure on the connecting point of each station or errors of the master module are assumed, check with the following procedure.



- If the bus cable between the slave station 05⁽⁸⁾ and 06⁽⁸⁾ is disconnected in the following system.

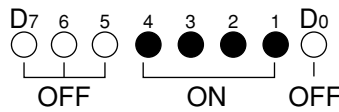


State of an individual communication flag



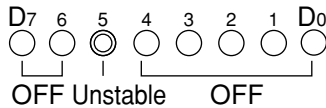
Remove the connector on point A, and turn ON the termination resistance of the master station.

As the communication possible stations 03⁽⁸⁾, 02⁽⁸⁾, 01⁽⁸⁾, and 04⁽⁸⁾ are normal, the state of communication monitoring flag is as follows.



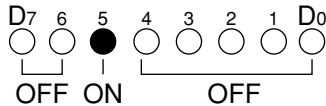
Connect the A connector, and then remove the connector on point B.

There is no normal station among communicatable station 05, 06, 07⁽⁸⁾, and 05⁽⁸⁾ is unstable.



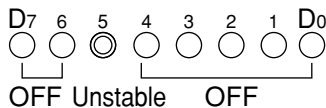
Remove the connector on point C and make sure the B connector is not connected.

As the communication possible station 05⁽⁸⁾ is normal, abnormal points exists ahead of the point C.



Connect the C connector and make sure the B connector is not connected, and remove the connector at the next point to the point D.

The station 05⁽⁸⁾ and 06⁽⁸⁾ become communication possible stations, but the station 05⁽⁸⁾ is unstable and the station 06⁽⁸⁾ is turned to OFF, so the abnormal states occur between the point C and the point D.



8

| Cause | Countermeasure |
|--|---|
| Disconnection in the bus cable and the branch cable between the station 05 ⁽⁸⁾ and 06 ⁽⁸⁾ , or contact failure of the connectors | Remove both the bus cable and the branch cable connectors. After that, shorten one of these connectors and check conductivity using a tester. |
| Error on the slave station 06 ⁽⁸⁾ | Exchange the slave module. |

③ During initial communication (start-up of the system)

Check the error code of master station

- **When the master station indicates error code BF_(H)**
The cause may be a parameter setting error of the master station. Check the master station parameters.
(See the next page)
- **When the master station indicates error code C1 to FF_(H)**
The cause may be a error of slave station. Check the error code of slave station.
- **When the COMM lamp of master station is OFF (SD, RD, and CD are flickering)**
Check the following master station's parameters

| Parameter address | Contents | Setting value |
|-----------------------|--------------|---------------|
| 003777 ₍₈₎ | Start switch | 01 |

- **Other cases**
Check the switches of the communication module
Check optional cable of PC (The PC does not operate normally without an optional cable.)
Check cable and connector
Check error code

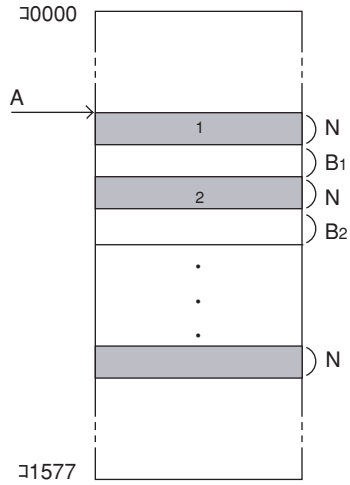
Check the error code of slave station

- **When the error code of slave station is no display and FAULT lamp is ON**
The cause may be error of wiring. Check for wiring.
- **When the slave station indicates error code 93_(H) to 95_(H)**
When the slave station indicates error code 9F_(H)
- **The cause may be a parameter setting error of the slave station.**
Check the slave station parameters.
- **When relation I/O is error**
Check I/O and rack panel.
- **Other cases**
Check the switches of the communication module
Check optional cable of PC (The PC does not operate normally without an optional cable.)
Check cable and connector

Parameter setting range

<Fixed allocation>

· When fixed allocation is used, set parameter within the range shown below:



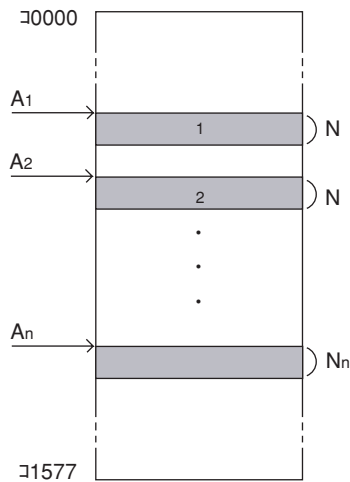
1 to n : Number of slave stations ($1 \leq n \leq 32$ or 63)
 A : Remote I/O top address
 N : Number of slave station I/O points (fixed to 64 points or 128 points)
 B₁ to B_n : Blank between stations

(Setting of JW model special I/O module)

| | |
|-------------------|---|
| Data register | 0 to 128 bytes in total per remote slave station 0 to 512 bytes in total of all stations |
| Number of modules | Up to 8 modules per remote slave station Up to 32 modules in total of all stations |

<Manual allocation>

· When the manual allocation is used, set parameter within the range shown below:



1 to n : Number of slave stations ($1 \leq n \leq 63$)
 A₁ to A_n : Remote I/O top address
 N₁ to N_n : Number of slave station I/O bytes ($0 \leq N_n \leq 128$)
 $N_1 + N_2 + \dots + N_n \leq 512$

(Setting of JW model special I/O module)

| | |
|-------------------|---|
| Data register | 0 to 128 bytes in total per remote slave station 0 to 512 bytes in total of all stations |
| Number of modules | Up to 8 modules per remote slave station Up to 32 modules in total of all stations |

④ **When the communication error occurs instantaneously.**

Cause may be:

- Noise on the communication line.
- Fault of a communication module.
- Fault of a communication cable.

Check the error's timing.

When the error occurs synchronous with a peripheral industrial robot's operation, noise to the communication line may be a cause. Consider arrangement of the wiring route.

Identify the error station.

When the error occurs at only the specific station, the cause may be the station or nearby. Check the following items.

- Setting of the LT (termination resistance) switch.
- Check cables/connectors
 - Looseness or removal of connectors (turn right until fixed securely)
 - Whether connectors are assembled to cables appropriate (check insulation/conductivity)
 - Cable length should be less than 1 km
 - Branch cable length should be less than 40 cm
- Error code (See page 8-52)

When identification of the cause is difficult.

Condition of the circuit may be unstable. (See page 8-52 "check items of cables and connectors")

- Looseness or removal of connectors (turn right until fixed securely)
- Whether connectors are assembled to cables appropriate (check insulation/conductivity)
- Cable length should be less than 1 km
- Branch cable length should be less than 40 cm

⑤ **When the communication error occurs continuously.**

Identify the error station.

Specify the error's station using the communication flag etc., (see page 8-51) and error code (see page 8-47). Then check this station.

- Check the power of the error's station.
- Check the error code of the error's station.
- Check cables/connectors

Looseness or removal of connectors (turn right until fixed securely)

Whether connectors are assembled to cables appropriate (check insulation/conductivity)

Cable length should be less than 1 km

Branch cable length should be less than 40 cm

When identification of the cause is difficult.

Condition of the whole circuit may be unstable.

Check cables and connectors.

- Looseness or removal of connectors (turn right until fixed securely)
- Whether connectors are assembled to cables appropriate (check insulation/conductivity)
- Cable length should be less than 1 km
- Branch cable length should be less than 40 cm

Chapter 9 Data Link

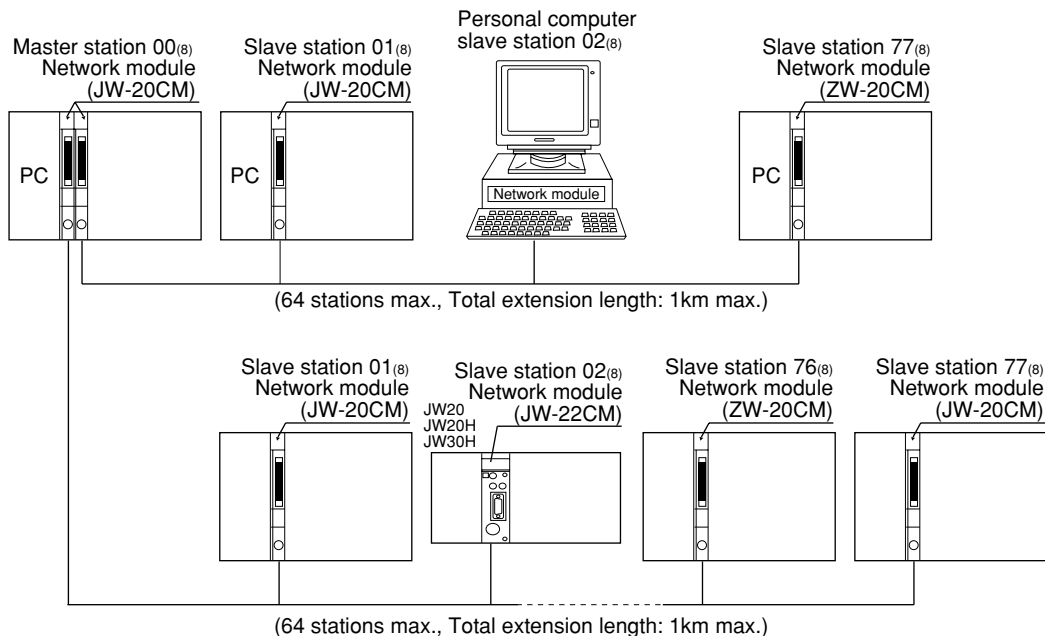
9-1 Description for data link function

- The data link function is used to send and receive ON/OFF signals (relay link: max. 2048 points) and numerical data (register link : max. 2048 bytes) by PCs or between PC and personal computers connected in the satellite net system.
- The master station and slave stations are connected using a single coaxial cable. As the JW-20CM network module can control the data communications, the PC does not need any special programming.
- When the JW-20CM is assigned as a slave station, it has the standard function and memory capacity save function for data link. But the data contents for receiving from other stations is different between these two functions. (When the JW-20CM is used as a master station, only the standard function is available.)

[When all of a master station and slave stations are JW-20CM]

- Master station — Data link (Standard function) } Receiving data are all relay link area, and
- Slave station — Data link (Standard function) } all register link area of all stations.
- Data link (Memory capacity save function) — In order to effectively use the memory, unify a partial data area or sending/receiving address (program) of slave stations.

- A maximum of 6 modules (a mixed installation of master and slave stations is allowed) can be installed on one PC.
- A maximum of 64 stations can transfer data on one network with maximum cable length of 1 km.

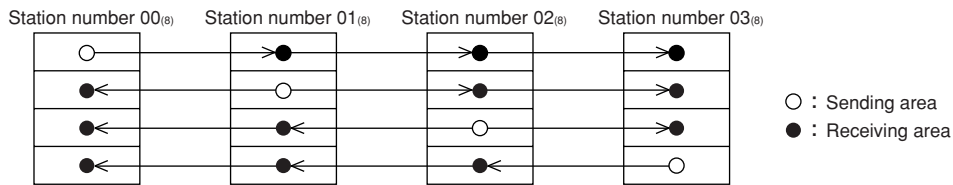


- Both JW and ZW model PCs can be connected on the same cable.

9-2 Communication method

[1] Data link (standard function)

Each station sends data in its sending area cyclically and stores data received from other stations in its receiving area.



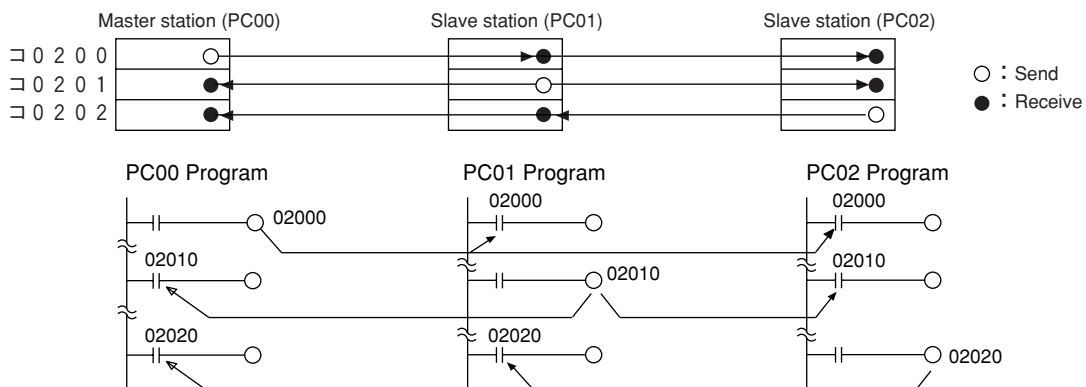
For the JW-20CM to execute automatically these sending and receiving procedures, a special program for communication is required. Data link have relay link and register link. They can use at the same time.

| Function | Contents | |
|---------------|--------------------|--|
| Relay link | N: M communication | Total no. of link points : 2048 max. (256 bytes) |
| Register link | N: M communication | Total no. of link bytes : 2048 max. |

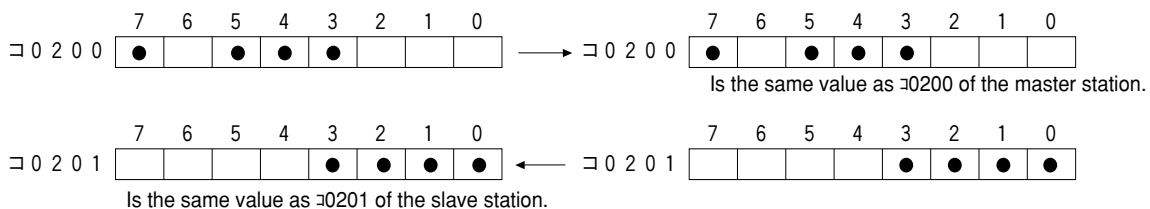
(1) Relay link function

Mainly used for sending and receiving ON/OFF information

[Example] In the case of sending 1-byte data from a master station and slave stations 01 and 02.



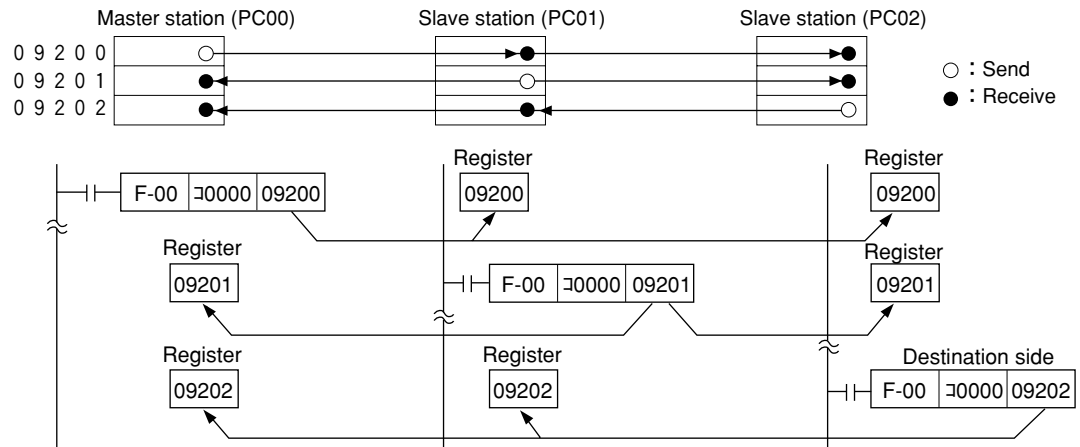
- The link relay of the receiving station must be programmed as input signal by the PC programming. Also, it may be used as source (S) side of application instruction.
- The sending and receiving data correspond in bits of one point unit.



(2) Register link function

Mainly used for sending and receiving numerical data.

[Example] In the case of sending 1 byte data from a master station and slave station 01 and 02.

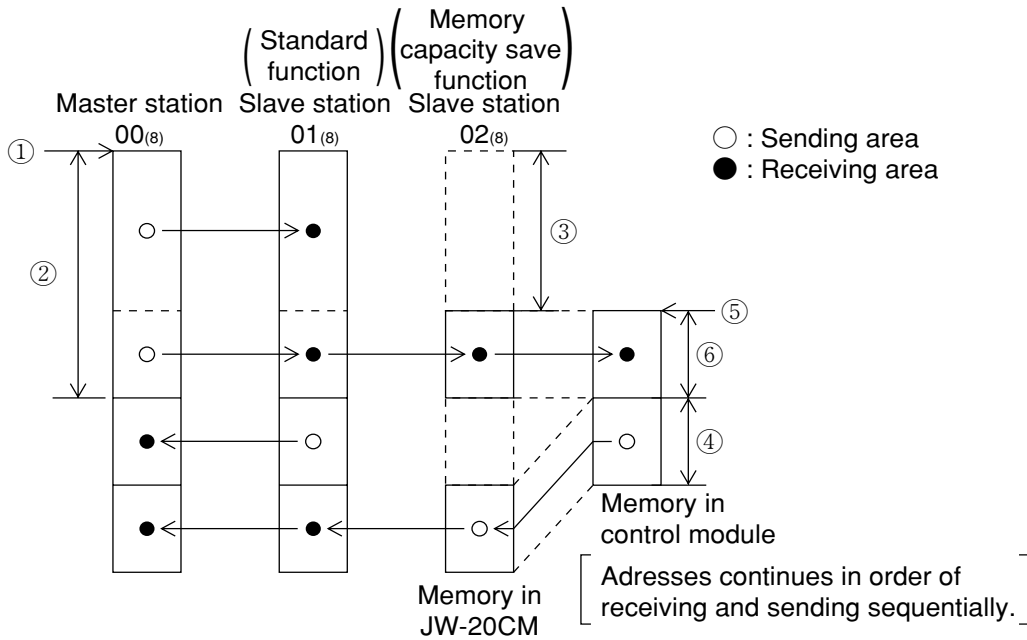


- The register link area of the sending station may be used as D (Destination) side of the application instruction of the PC program.
- The register link area of the receiving station may be used as S (Source) side of the application instruction of the PC program.

V5 [2] Data link (Memory capacity save function)

The memory capacity save function is to provide a part of the data link area in the slave station data memory as a receiving area. A slave station can receive only the required area by relay link/register link so that the slave stations can save on use of the memory area.

As this function can unify the receiving area address and the sending area address of each slave station, the same program can be used for each slave station. Mixed allocation of the addresses with the data link (standard function) is also possible.



| Function | Contents | |
|---------------|--------------------|---|
| Relay link | N: M communication | Total link number of points: Maximum 2048 points (256 bytes) Total number of points of sending/receiving data per slave station: Maximum 512 points (64 bytes) |
| Register link | N: M communication | Total link number of points: Maximum 2048 bytes Total number of points of sending/receiving data per slave station: Maximum 512 bytes |

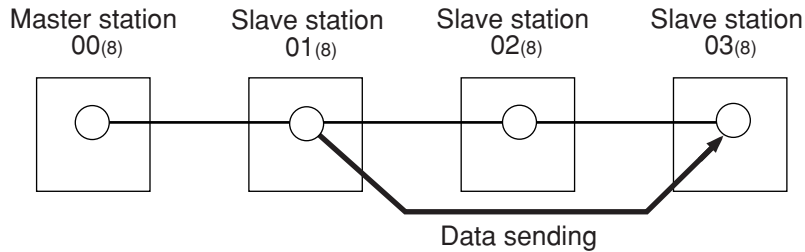
| Setting contents | Setting item |
|---|-----------------------------|
| ① Top address of master station link area | Master station 's parameter |
| ② Number of sending data bytes of master station | |
| ③ Number of offset bytes of slave station | |
| ④ Number of sending data bytes of slave station | |
| ⑤ Top address of slave station link area | Slave station's parameter |
| ⑥ Number of data receiving bytes of slave station | |

[3] Link function with specific station (F200/F201 link function)

There is a function for communicating data other than the parameter setting values using the PC's application instructions F-200 (write to ports) and F-201 (read from ports). The JW-20CM communicates data while executing data link operations.

See page 13·22 to 13·25 for application instructions F-200 and F-201 in details.

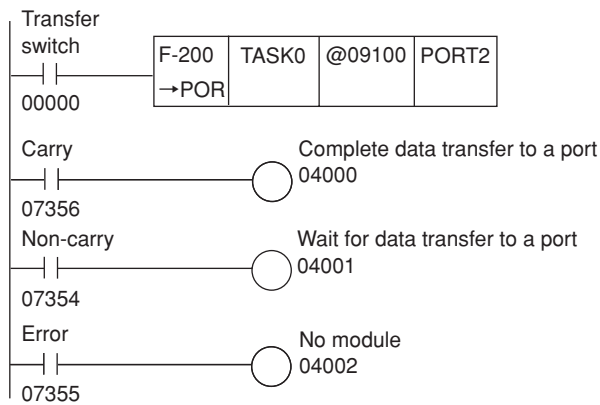
See instruction manual of ZW-98CM and ZW-20AX in case that communicating with host computer.



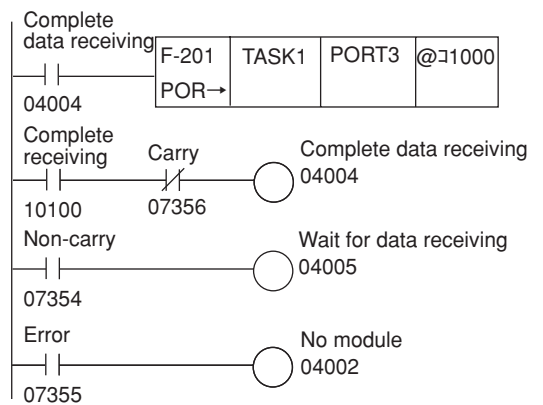
Example) In case of sending 8 bytes data from slave station 01₍₈₎ to slave station 03₍₈₎.

| | Slave station 01 ₍₈₎ | Slave station 03 ₍₈₎ |
|-------------------------------|---------------------------------|---------------------------------|
| Sending data top address | Register 09000 | — |
| Receiving data top address | — | Register 09000 |
| JW-20CM installed port number | 2 | 3 |

An example of program at slave station 01₍₈₎



An example of program at slave station 03₍₈₎



| | | |
|-------|--------|--------------------------------|
| 09000 | 01 (H) | ← Sending data 8 bytes data |
| 09001 | 23 (H) | |
| 09002 | 45 (H) | |
| 09003 | 67 (H) | |
| 09004 | 89 (H) | |
| 09005 | AB (H) | |
| 09006 | CD (H) | |
| 09007 | EF (H) | |

| | | |
|-------|-----------|---|
| 09100 | 000 (8) | Sending data top address (register 09000) |
| 09101 | 010 (8) | File number |
| 09102 | 000 (8) | No. of transfer bytes (8 bytes) |
| 09103 | 010 (8) | Target station number |
| 09104 | 003 (8) | |
| 09105 | | |
| 09106 | | |
| 09107 | Not fixed | |
| 09110 | | |
| 09111 | | |

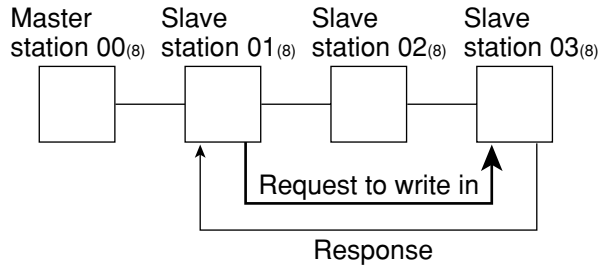
| | | |
|-------|--------|-----------------------------|
| 09000 | 01 (H) | ← Receiving data 8 bytes |
| 09001 | 23 (H) | |
| 09002 | 45 (H) | |
| 09003 | 67 (H) | |
| 09004 | 89 (H) | |
| 09005 | AB (H) | |
| 09006 | CD (H) | |
| 09007 | EF (H) | |

| | | |
|-------|-----------|---|
| 11000 | 000 (8) | Receiving data top address (register 09000) |
| 11001 | 010 (8) | File number |
| 11002 | 000 (8) | No. of transfer bytes (8 bytes) |
| 11003 | 010 (8) | Target station number |
| 11004 | 000 (8) | |
| 11005 | 000 (8) | |
| 11006 | 000 (8) | |
| 11007 | 001 (8) | 25. Sending station number |
| 11010 | Not fixed | Receiving completed flag (D0) |
| 11011 | Not fixed | |

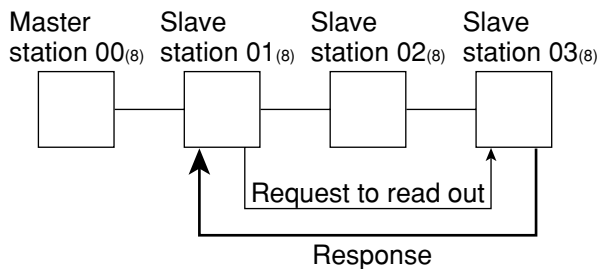
[4] SEND/RECEIVE function

Different from the data link, the SEND/RECEIVE functions are functions which exchange the data of the required station of the required time between a PC and a personal computer or between PCs. The SEND function is the function which writes in the data after assigning the station to send data to, and the RECEIVE function is the function which reads out the data.

[An example of the SEND function]



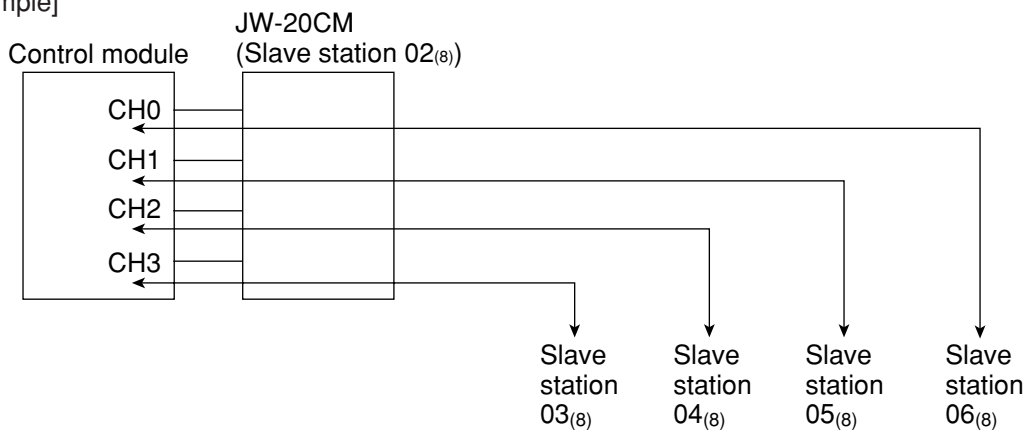
[An example of the RECEIVE function]



- In this instruction, the function is completed after the target station replies. A special program is not needed in the connected PC station. If the target station is an upper computer, a program is required for response after decoding the SEND/RECEIVE instructions. But if the upper computer cannot decode the SEND/RECEIVE instructions, these instructions can not be used.

- The data route for the SEND/RECEIVE functions between the control module and this module is called a "channel." Each module has four channels, CH0 to CH3, and is able to transfer a maximum of 256 bytes of data. Therefore, four operations of SEND/RECEIVE functions can be executed simultaneously on a ladder program.

[Example]



- There are the "instruction system" and the "data memory starting system" as the starting system in SEND/RECEIVE functions.

You can select the starting system in each channel using a parameter.

- With the "Data memory start system," the JW-20CM can communicate across different hierarchies of the satellite net. However, this type of communication has the following limitations.

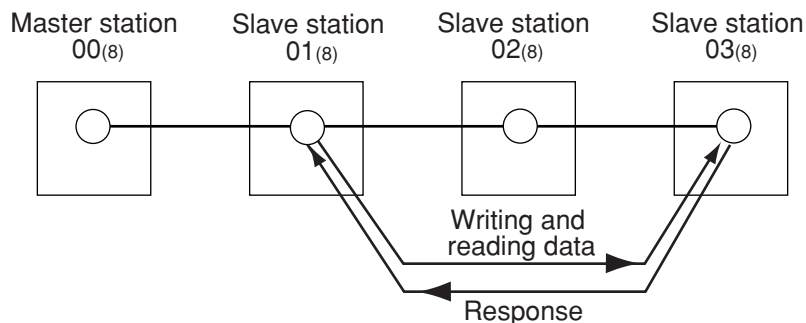
- 1 JW20/20H cannot be used as relay stations.
- 2 ZW-98CM/ZW-20AX cannot be used as communication target stations.
- 3 The maximum amount of data is 256 bytes.

(1) Instruction system

The PC's application instruction F-202/203 (open channel), F-204 (sending instruction), and F-204 (receive instruction) to send and receive data between modules in a network, and from a module in a network to an upper stream computer is used.

- In this instruction, the function is completed after the target station replies. A special program is not needed in the connected PC station. If the target station is an upper computer, a program is required for response after decoding the SEND/RECEIVE instructions. But if the upper computer cannot decode the SEND/RECEIVE instructions, these instructions can not be used.
- SEND/RECEIVE functions of instruction system cannot be communicated two hierarchical layer.

| Communication contents | Instruction to be used (see page) |
|--|-----------------------------------|
| Specify communication target station in octal notation. (for ZW/JW-20CM) | F-202 (13-26) |
| Write data in the specified station (SEND instruction) | F-204 (13-27) |
| Read data out of the specified station (RECEIVE instruction) | F-205 (13-28) |



Input conditions of F-202/204/205 instructions should keep being ON until finishing execution of the instruction (when error flag or carry flag turns to ON.)

- If the input condition is turned OFF during execution of the instruction, the instruction ends in an incomplete condition. Under this condition, next, when this instruction is given, it will come to a "communication jam," and the instruction will not be executed. Turn the power OFF and then ON again for recovery.

Take any measure for the cases below:

- In case that on instantaneous power failure of min. 10ms occurs and the input conditions turn to OFF.

[Countermeasure] Change the input conditions to a latched relay.

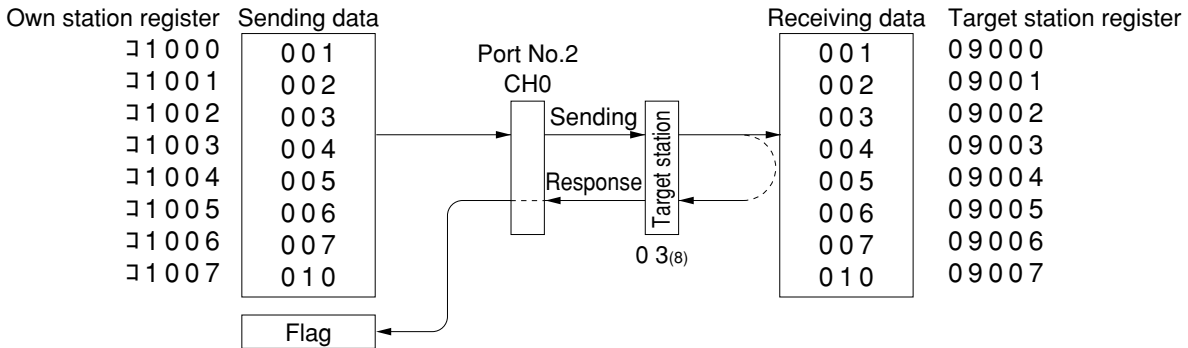
However if you turn OFF and ON the power during execution of the instruction while the input condition is set to a latched relay, the JW-20CM will come to the following state.

F-204/205 instruction processing which is being executed is deleted, and rising edge of input signal can not be detected for the input condition is kept ON so that this instruction can not be executed.

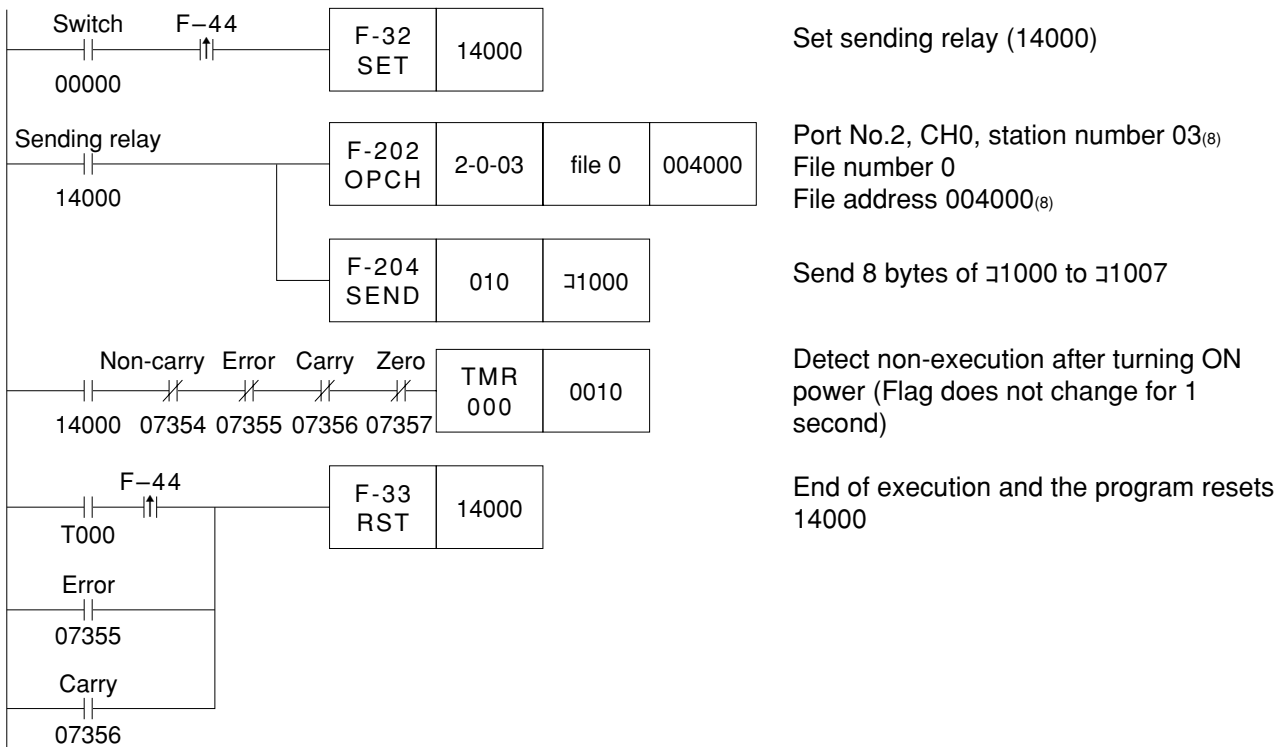
[Countermeasure] All flags (07354 to 07357) are turned to OFF. Detect them with the timer, and operate the next instruction after resetting the input conditions.

Note: The SEND/RECEIVE instruction is not allowed to use 10 to 2C_(H) as the file numbers for the communication target station. The data memory start system can use these numbers.

[Example] In case of writing data of 8 bytes to slave station 03₍₈₎
 Module number installing own station JW-20CM : 2
 Channel number using own station JW-20CM : 0
 Data area of slave station 03₍₈₎ : 0 (file number)
 Receive top address of slave station 03₍₈₎ : Register 09000 (file address 004000₍₈₎)
 Send data top address of own station : 1000



■ PC program



For an example to readout data from the assigned station using F-205, see page 13-28.

V5 (2) Data memory starting system

The data memory starting system is the system which starts the SEND/RECEIVE functions without using exclusive instructions. Set the target station number, data memory address, etc. on the specified data memory (communication information storage area).

You can increase the amount of data to be transferred in one SEND/RECEIVE operation using multiple connected channels.

For cases using 1 channel alone, maximum 256 bytes

For cases using 2 connected channels, maximum 512 bytes

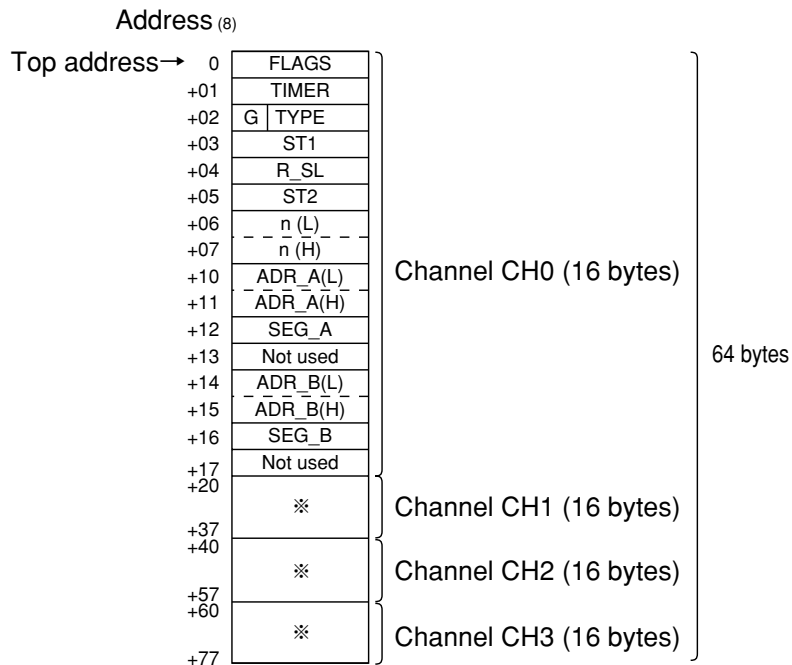
For cases using 3 connected channels, maximum 768 bytes

For cases using 4 connected channels, maximum 1024 bytes

Set these channel connections on the parameter (address 007700 to 007703₍₈₎). (See page 9·27 and 48)

[Setting the contents in a communication information storage area]

In order to assign a communication information storage area (64 bytes), set the top address on the parameter (address 007710 to 007713₍₈₎).



※ The contents of each area (16 bytes) in channel CH1 to CH3 are the same as the contents of CH0.

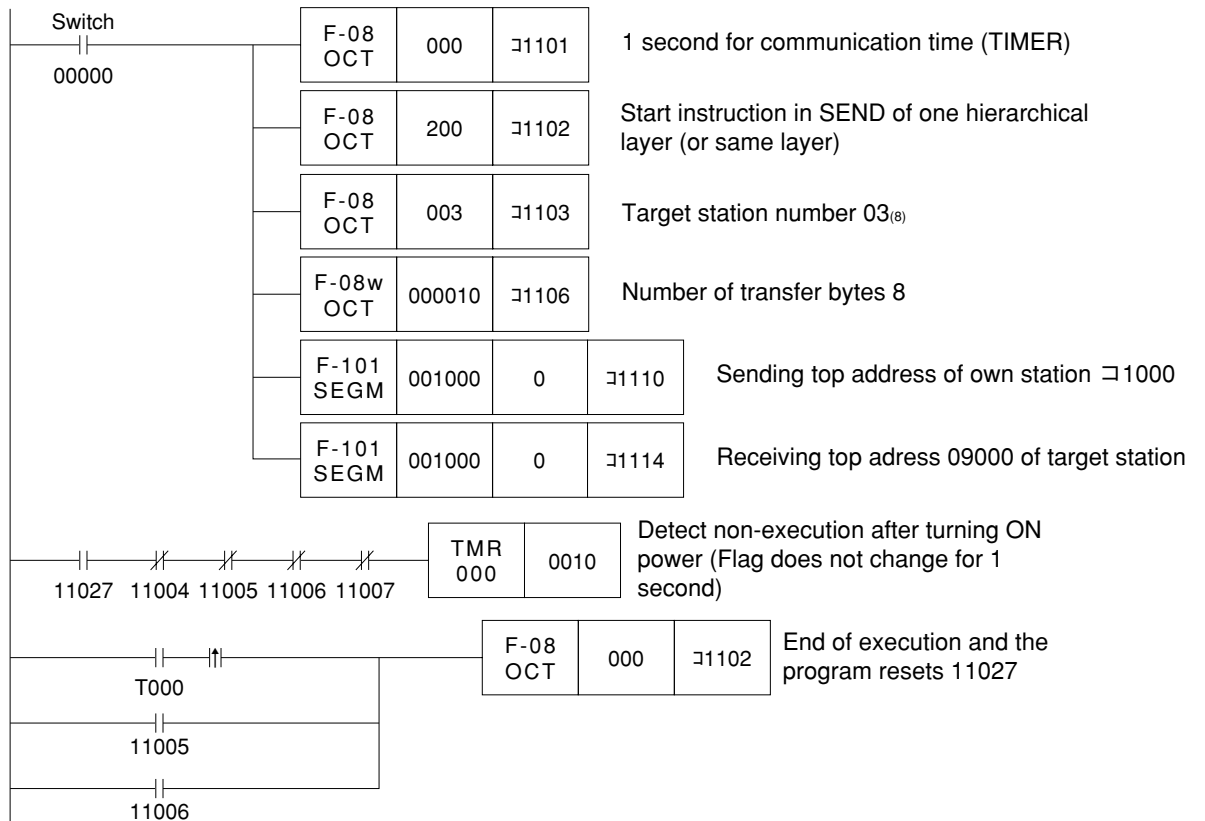
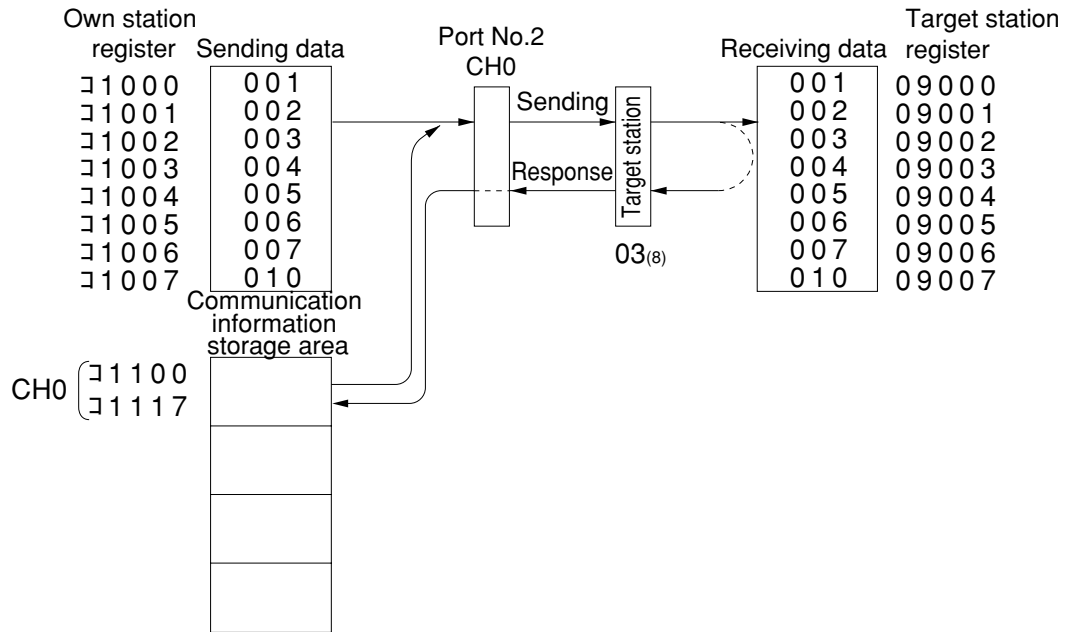
| Area | *Input/ Output | Contents | |
|---|-------------------|--|---|
| FLAGS | Input | Flag (the same as 0735. Refer to the following table for the details.) | |
| TIMER | Output | Communication monitoring time 001 _(D) (0.1 second) to 255 _(D) (25.5 seconds) (Initial value 000 _(D) is 1 second.) | |
| G (7th bit) | Output | Starting instruction. Turn ON after starting communication. | |
| TYPE (0 bit to 6th bit) | Output | Transfer type <table style="display: inline-table; vertical-align: middle;"> <tr> <td style="border-left: 1px solid black; border-right: 1px solid black; padding: 0 5px;"> 00_(H) : SEND (one hierarchical layer), 01_(H) : SEND (two hierarchical layer differences), 02_(H) : RCV (one hierarchical layer), 03_(H) : RCV (two hierarchical layer differences) </td> </tr> </table> | 00 _(H) : SEND (one hierarchical layer), 01 _(H) : SEND (two hierarchical layer differences), 02 _(H) : RCV (one hierarchical layer), 03 _(H) : RCV (two hierarchical layer differences) |
| 00 _(H) : SEND (one hierarchical layer), 01 _(H) : SEND (two hierarchical layer differences), 02 _(H) : RCV (one hierarchical layer), 03 _(H) : RCV (two hierarchical layer differences) | | | |
| ST1 | Output | For cases with one hierarchical layer, the number of the target station is 00 to 77 ₍₈₎ . For cases with two hierarchical layer differences, the number of the relay station is 00 to 77 ₍₈₎ . | |
| R_SL | Output | For cases with two hierarchical layer differences, the module number of the next hierarchical layer difference in relay station. (When the relay station is JW50/70/100 or JW50H/70H/100H, it represents the rack/slot number.) For cases with one hierarchical layer difference, invalid. | |
| ST2 | Output | For cases with two hierarchical layer differences, the number of the target station is 00 to 77 ₍₈₎ . For cases with one hierarchical layer difference, invalid. | |
| n | Output | Number of transfer bytes 000 to 377 ₍₈₎ (000 ₍₈₎ is 256 bytes) | |
| ADR __ A | Output | File address of own station 000000 to 177777 ₍₈₎ | |
| SEG __ A | Output | File number of own station 0 to 7 | |
| ADR __ B | Output | File address of target station 000000 to 177777 ₍₈₎ | |
| SEG __ B | Output | File number of target station 0 to 7 · JW-20CM with [30H] mark cannot set 10 to 2C _(H) | |

* Input : Control module ← JW-20CM, Output : Control module → JW-20CM

• Contents of FLAGS

| Value of FLAGS _(H) | Contents | Contents of bit | | | | |
|-------------------------------|---|-----------------|---|---|---|--------|
| | | 7 | 6 | 5 | 4 | 3 to 0 |
| 00 | During non-execution | 0 | 0 | 0 | 0 | 0 |
| 90 | During communicating. Interval after operating the instruction till the completion. | 1 | 0 | 0 | 1 | 0 |
| 40 | Normal end | 0 | 1 | 0 | 0 | 0 |
| 60 | Abnormal end (communication time-out) | 0 | 1 | 1 | 0 | 0 |
| E0 | Abnormal end (error response) | 1 | 1 | 1 | 0 | 0 |

[Example] In case of writing 8 bytes data to slave station 03
 Module number installing own station JW-20CM : 2
 Channel number using own station JW-20CM : 0
 Sending data top address of own station : 1000 (file 0, file address 001000₍₈₎)
 Data area of target station : 09000 (file 0, file address 004000₍₈₎)
 Top address of communication information storage area : 1100



9-3 Data transfer required time and communication delay time

(1) Required time for data transfer

This is the time required for the master station to complete communication with all stations, and is determined by the number of connected stations with and the number of data items to transmit.

$$\text{Transmission T operation cycle} = \frac{N + 136 \times P}{1250} + 2.5 \times P + \alpha + 16 \text{ (ms)}$$

N : Total number of link points (value to be calculated by relay link bytes and register link bytes 8 points).

P : Number of connected stations (master + slave)

136 : 136 bits are used for station address and error check data on the communication format.

1250 : Transmission rate: 1.25M bits per second

2.5 : Inter-station wait time plus processing time to move to next station (unit : ms)

α : Communication recovery operation time

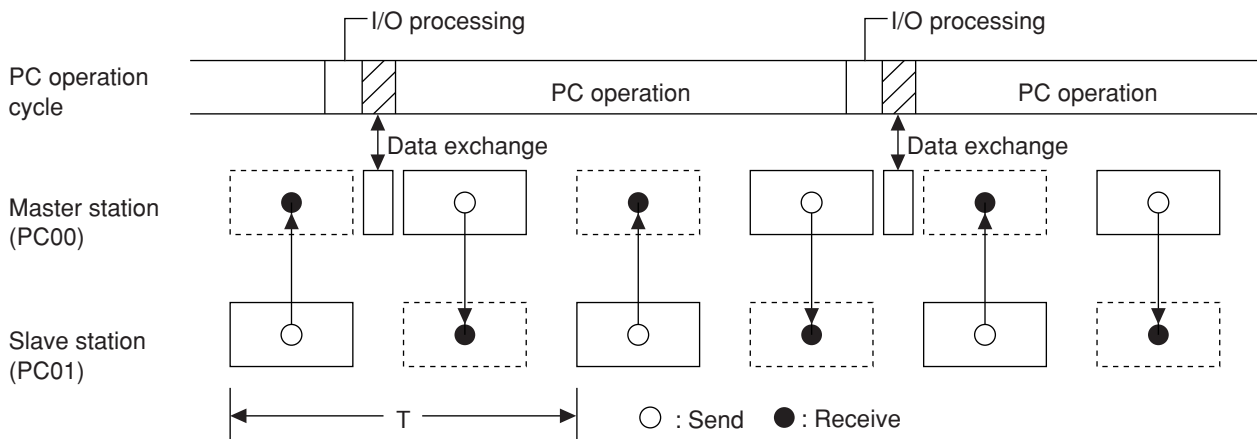
• When an error occurs at any station, the master station periodically treats the error.

$\alpha = 3.5 \times \text{number of error stations ms}$

16 : Time to maintain token bus. It can enter at random intervals.

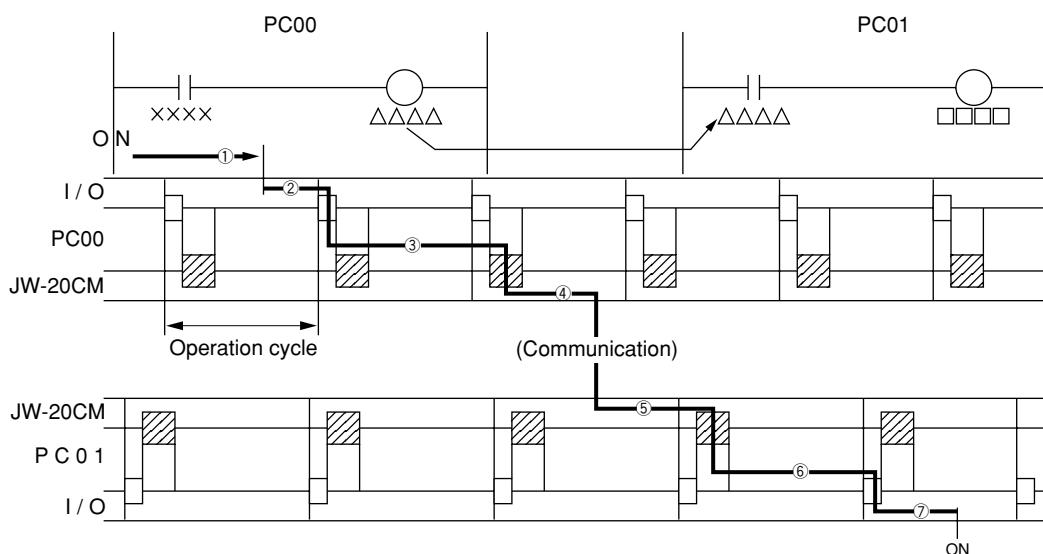
[Example] In the case of two connected stations and 8 bytes of link points,

$$\begin{aligned} \text{Transmission T operation cycle} &= \frac{8 \text{ bytes} \times 8 \text{ points} \times 2 \text{ stations} + 136 \times 2 \text{ stations}}{1250} \\ &+ 2.5 \times 2 \text{ stations} + 16 = 21.32 \text{ ms} \end{aligned}$$



(2) Communication delay time

The communication data on the satellite net may have the delay shown below.



- ① Delay of input module
- ② Time required for PC to detect input state (one operation cycle max.)
- ③ Operation time of sending PC (one operation cycle)
- ④ Time to complete sending of operation result (one communication cycle max.)
- ⑤ Time required for receiving PC to write receive data in PC data memory (one operation cycle max.)
- ⑥ Operation time of receiving PC (one operation cycle)
- ⑦ Delay of output module

Communication delay time is the total time of ① to ⑦ above.

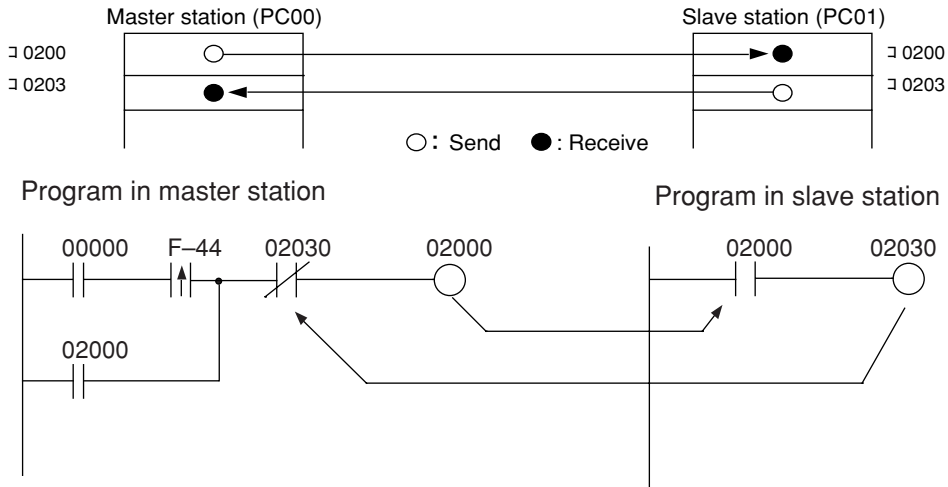
Remarks

The buffer memory contents of the JW-20CM is renewed for each PC operation cycle. Therefore, a contact point which turns "ON" for only one operation cycle of a PC may not be transferred.

(3) Data transmission between master PC and slave PC

Providing synchronous transfer gives positive data communication.

[An example of synchronized transfer by OUT instruction]



- 00000 is turned "ON" at the master station side. (OUT 02000 is a self-holding circuit.)
- When 02000 is turned "ON" at the slave station side, OUT 02030 is also turned "ON." This is sent back to the master station side.

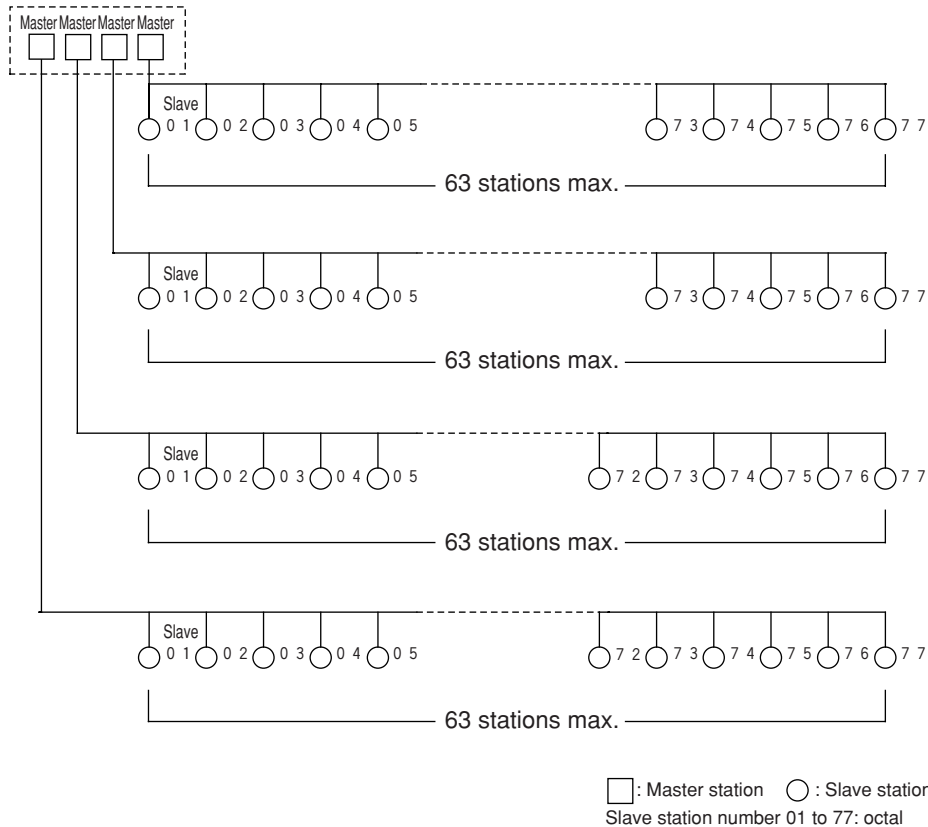
9-4 Expansion of network

The JW-20CM can transmit data between 64 stations at maximum. If more than 64 stations are required for data link, you can add communication stations with the procedure below.

(1) Multiple installation of the JW-20CM

Mounting more than one JW-20CM on the optional slot of the basic rack panel can increase the number of stations.

[In the case of mounting 4 sets of JW-20CM]

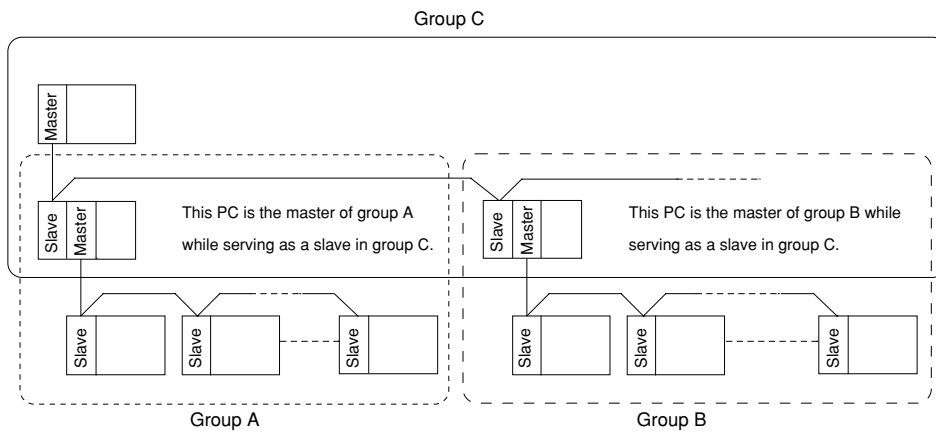
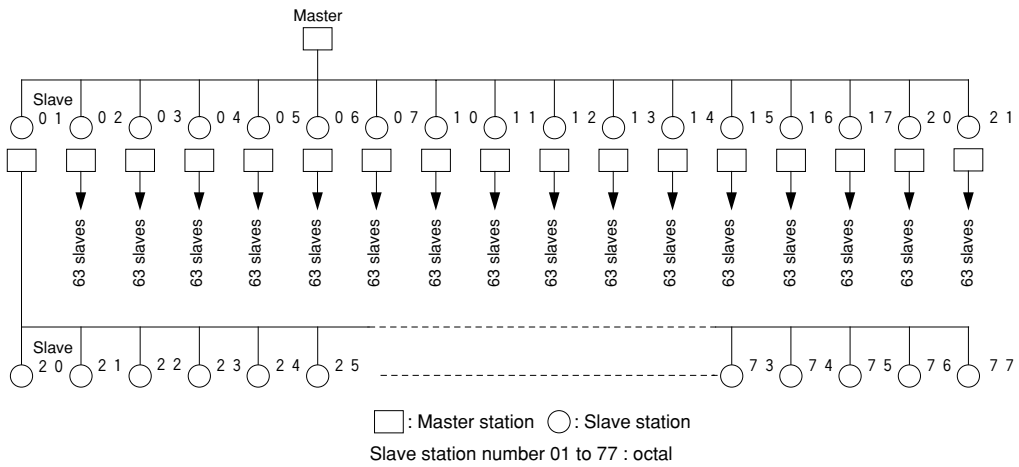


Remarks

- When installing multiple number of modules on a single PC, make them allocated so that relay link area, register link area, and flag area may not overlap with each other.
- When installing multiple number of modules on a single PC, pay attention to the total communication data volume and the number of bytes available for communication area.
- Though more than one JW-20CM can be mounted on single basic rack panel, they cannot directly communicate with other stations beyond one network.

(2) Hierarchical link

When 2 sets of JW-20CM are mounted on the optional slot of the basic rack panel, hierarchical link communication is possible and can increase the number of stations.



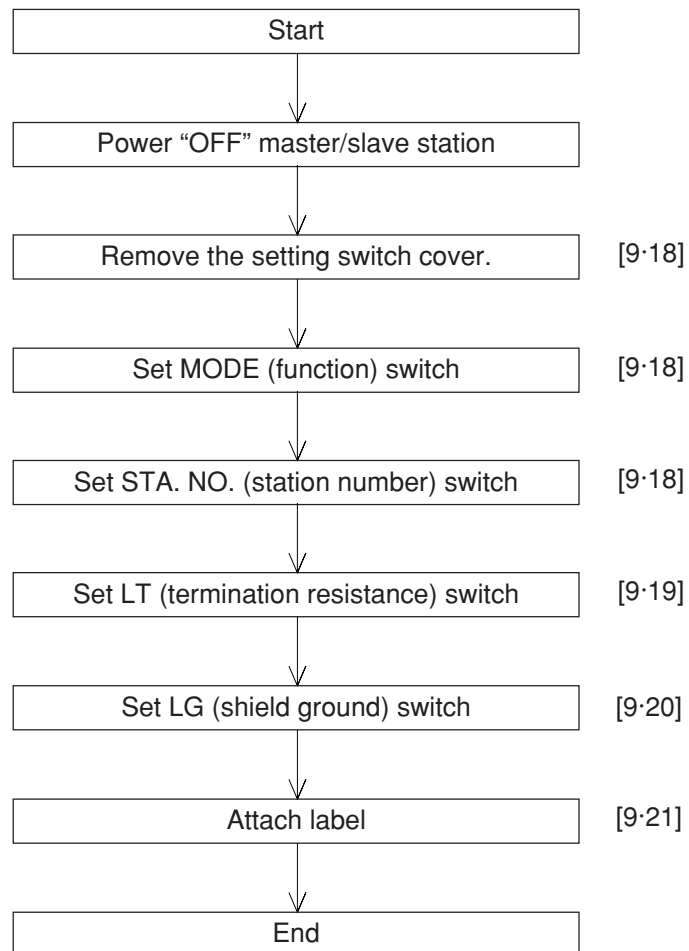
Remarks

- Pay attention to hierarchical link system consisting of more than two levels as it takes time for communication between the stations at the highest level and at the lowest level.
- Though more than one JW-20CM can be mounted on single basic rack panel, they cannot directly communicate with other stations beyond one network.

9-5 Switch setting of master station or slave station

Operation procedure

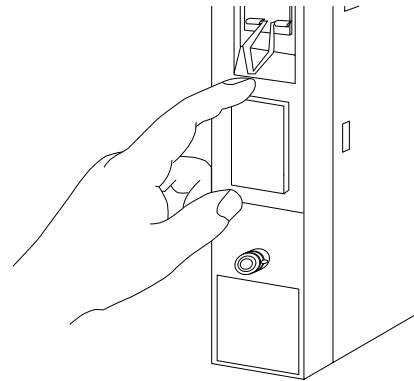
In brackets: See page in Chapter 9



Turn master module and slave module power "OFF."

Remove the setting switch cover of network module JW-20CM.

- With your fingertips over the top and bottom of the switch cover, pull the cover towards you to remove it.
- Keep the cover saved as it must be installed after switch setting.

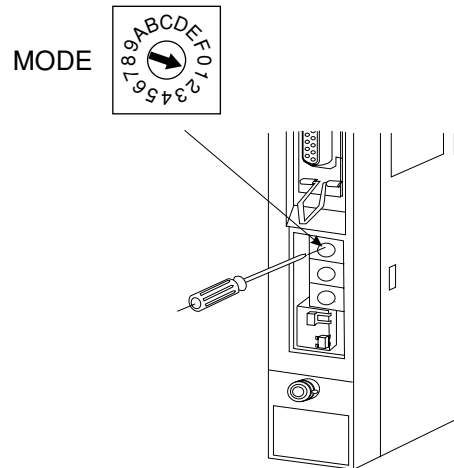


Set MODE (function) switch

- In case of master station, be sure to setting "1."
- In case of slave station, be sure to setting "2" or "3."

| Setting value | Function |
|---------------|--|
| 0 | Set at delivery |
| 1 | Remote I/O |
| 2 | Data link (standard function) |
| | Computer link |
| 3 | Data link (memory capacity save function) |
| | Computer link |
| 4-F | Test mode A service man will use these switches for adjustment. |

Do not set "4 to F."

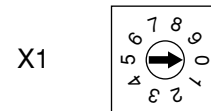
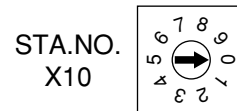


Set STA. NO. (station number) switch

- In case of master station, be sure to setting "00₍₈₎."
- In case of slave station, set 01 to 77₍₈₎ in order "01" continuously.

A maximum number of 63 slave stations can be connected. Enter station numbers using octal notation.

Be careful not to assign the same number twice and do not skip any numbers.

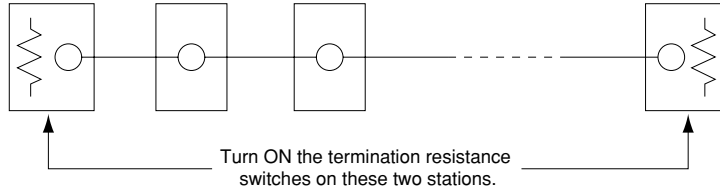
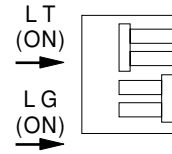


To the next page

From the previous page

Set LT (termination resistance) switch

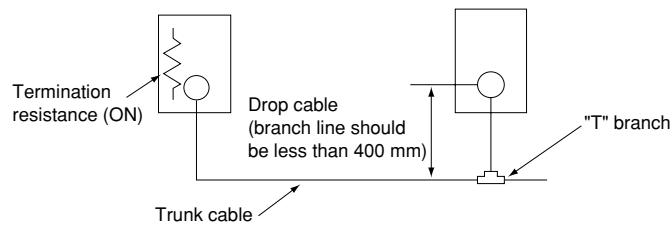
- When master module or slave module is at either end the communication line, make sure to set the termination resistance switch "ON."



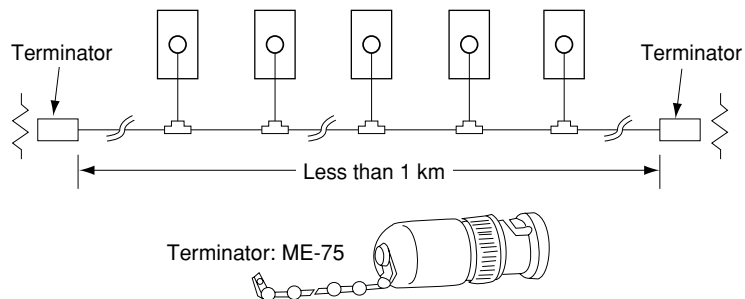
Reference: Function of the termination resistance switch

If the communication line does not have a termination resistance, the high frequency signal will be reflected at the ends of the cable. These reflected signals can collide with the original communication signals, so that some stations will not be able to communicate normally. The use of termination resistance suppresses reflected signals. If the termination resistance switch on any of the stations in between the end of the cable is turned ON, the station will generate a reflection wave signal or attenuate the original signal and may not communicate normally.

- When the trunk line has a branch in it, turn ON the termination resistance at the station on the trunk cable.



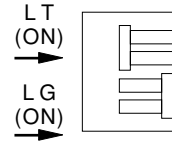
- If you use a terminator (termination resistance made by Toko Denshi: ME-75) at the end of a signal cable, turn OFF the termination resistance at the station on the end of the cable.



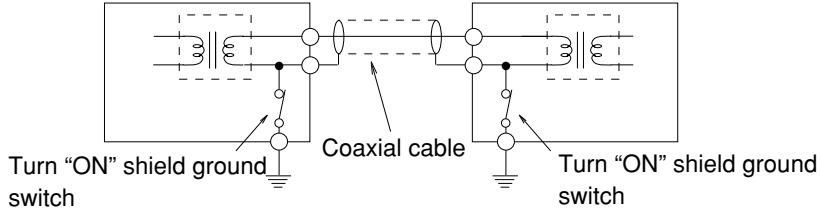
To the next page

From the previous page

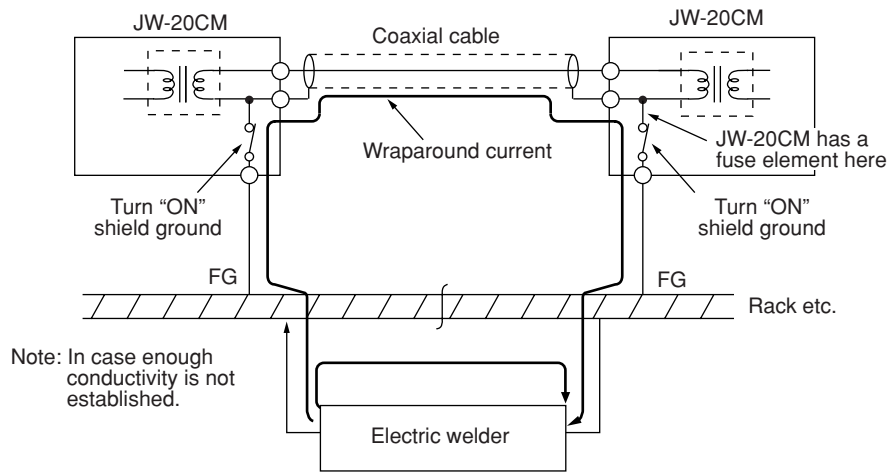
Set LG (shield ground) switch



- For communication lines, use a coaxial cable.
- As coaxial cable is an unbalanced circuit, ground its shield by turning "ON" the shield ground switch.



- Make sure to provide a class-3 grounding for the GND terminal of the power module. Without grounding the power module, the JW-20CM cannot become conductive with the ground after turning "ON" the shield ground switch. (See page 7 · 2.)
- Prior to any electric welding around the JW-20CM, take out the coaxial cable from the JW-20CM. While the coaxial cable is connected to the JW-20CM, any electric welding nearby the JW-20CM will cause the welding current to the JW-20CM and may damage part of its circuit pattern.



To the next page

From the previous page

Attach label

- Attach the data link label to this module, make setting “data link function” clear.
- Write “STATION NO.” on this label.

In case of master module

| |
|----------------------------|
| LINK FUNCTION DATA LINK |
| STATION NO. PC00 |

In case of slave module

| |
|----------------------------|
| LINK FUNCTION DATA LINK |
| STATION NO. PC01 |

Switch setting end.

9-6 Setting contents of slave station parameters

When the JW-20CM is used as a slave station, set the following items for parameters.

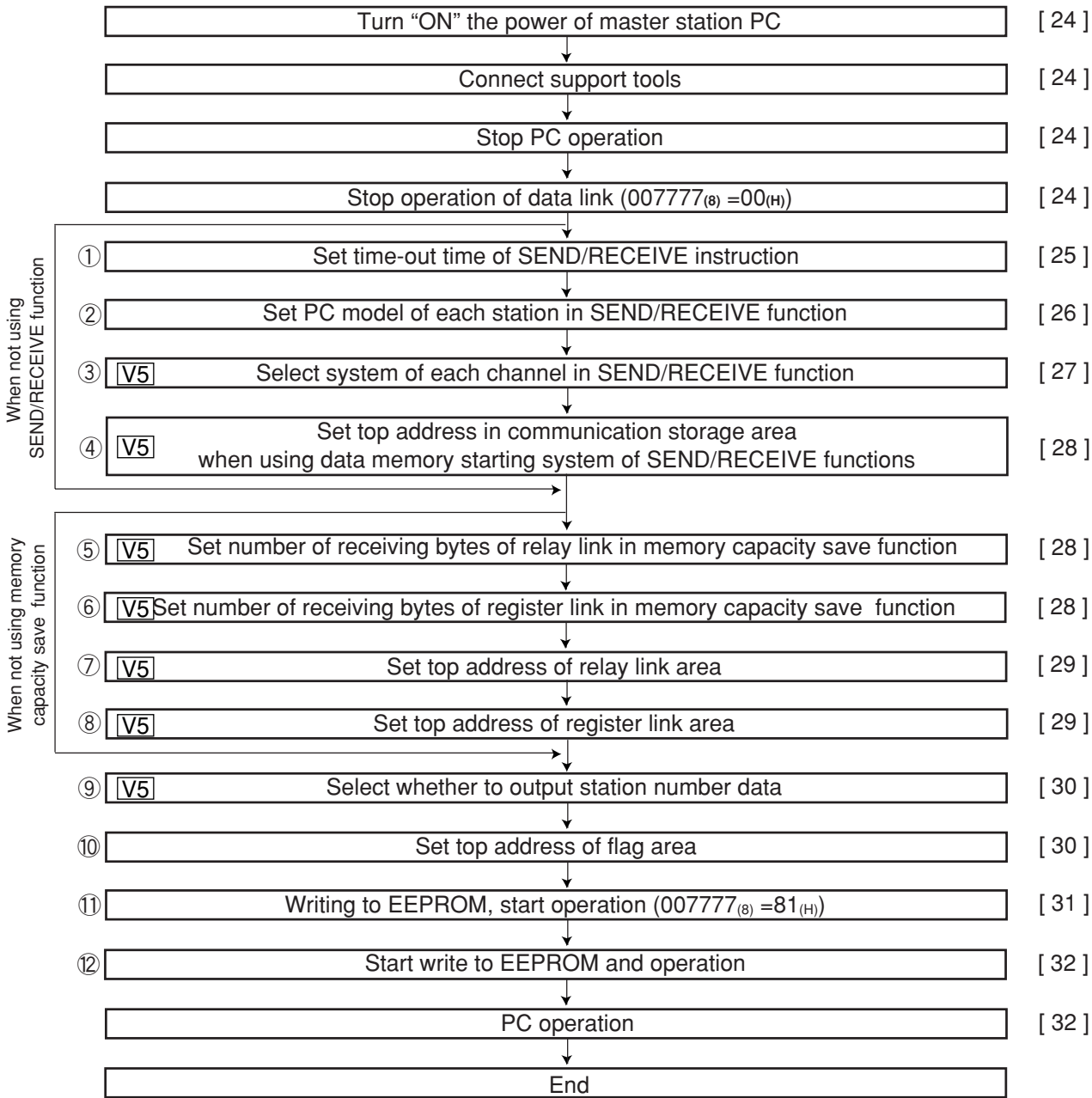
| Setting item | Address ⁽⁸⁾ | Initial value ^(H) | Contents | Corresponding signs on pages 11·7 and 11·8 |
|--|------------------------|------------------------------|--|--|
| ① Setting time-out item of SEND/RECEIVE instruction | 007500 to 007577 | 00 | For using SEND/RECEIVE instruction, set the time out time by decimal. [001 (0.1 sec.) to 255 (25.5 sec.)] | — |
| ② Setting PC model of each station in SEND/RECEIVE function | 007600 to 007677 | 91 | 91 ^(H) : The PC is JW type and ZW-20CM has JW mark or JW-20CM or JW-22CM 81 ^(H) : The PC is ZW type and ZW-20CM has JW mark or JW-20CM. 00/81 ^(H) : ZW-20CM without JW mark | — |
| ※1 ③ Select system of each channel in SEND/RECEIVE function V5 | 007700 to 007703 | 00 | Select instruction system or data memory starting system in CH0 to CH3 | — |
| ④ Top addresses in communication information storage area when using data memory starting system of SEND/RECEIVE functions V5 | 007710 to 007713 | 00 | Setting by file number and file address. · Setting within communication information storage area (64 bytes) File 0: 000000 to 015777 ⁽⁸⁾ File 1 to 7: 000000 to 177777 ⁽⁸⁾ | — |
| ⑤ Number of receiving bytes of relay link in memory capacity save function V5 | 007720 to 007721 | 00 | Set the number of bytes by decimals. (0 to 64) · If 0 is set, the number of bytes will be the same as the number of the sending bytes which is set in the master station | h ₁ to h _n |
| ⑥ Number of receiving bytes of register link in memory capacity save function V5 | 007722 to 007723 | 00 | Set the number of bytes by decimals. (0 to 512) · If 0 is set, the number of bytes will be the same as the number of the sending bytes which is set in the master station | i ₁ to i _n |
| ※2 ⑦ Top address of relay link area V5 | 007730 to 007733 | 00 | Set by file number and file address. (See page 13·20 and 13·21) | f ₁ to f _n |
| ⑧ Top address of register link area V5 | 007734 to 007737 | 00 | Set by file number and file address. (See page 13·20 and 13·21) | g ₁ to g _n |
| ⑨ Whether the station number information should be output or not V2 | 007763 | 00 | Store the number of own station in the data memory when setting on 01 ^(H) . (storage area of 1 byte follows flag area of 24 bytes, valid when 007767 ⁽⁸⁾ is 80 ^(H)) | — |
| ⑩ Top address of flag area (communication and PC operation condition monitor flag) | 007764 | E0 | Lower of file address | Initial value: 01E0 ^(H) ↓ 007767 ⁽⁸⁾ (≠0740) |
| | 007765 | 01 | Upper of file address | |
| | 007766 | 00 | File number | |
| | 007767 | 80 | Flag output (Yes: 80 ^(H) No: 00 ^(H)) | |
| ⑪ Communication error detection interval | 007771 | 00 | Settable detection interval with 100 ms pitch | — |
| ⑫ Writing to the EEPROM, start operation/stop setting | 007777 | 01 | 00 ^(H) : Stop remote I/O operation | — |
| | | | 01 ^(H) : Start remote I/O operation | |
| | | | 80 ^(H) : Writing to the EEPROM, stop operation | |
| | | | 81 ^(H) : Writing to the EEPROM, start operation | |
| | | | 08 ^(H) : Initialize the parameter | |

※1 Set only any of JW50/70/100 or JW50/70H/100H is used as PC, and using SEND/RECEIVE instruction.

※2 Set only any of JW50/70/100 or JW50/70H/100H is used as PC, and using the memory capacity save function.

① to ⑫ correspond to numbers in the next page.

Operation procedure



① to ⑨ correspond to numbers in the previous page.

Turn "ON" the power of slave module

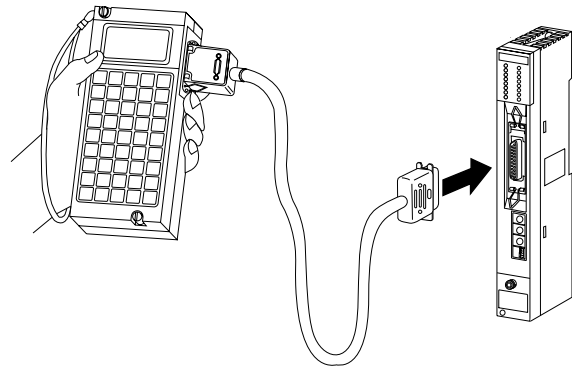
Connect support tools

- Connect a support tool with the JW-20CM and prepare the setting parameter.

<Usable support tools>

- JW-13PG/12PG
- JW-50SP
- JW-50PG, Z-100LP2S

- For operation of each support tool, see the instruction manual attached. The following describes an example of JW-13PG's key operation.



Stop PC operation

- Turn to program mode (stop PC operation). Setting of parameters is only available when the PC is in program mode.

(Operation example of JW-13PG)

* * PROG MODE SET 8 → Stop PC operation

クリア CLR * * シフト SHIFT INTL DISP SET 8 B 1 → Select parameter setting mode.
 Select initial mode (Parameter setting)

Stop operation of data link [HEX (hexadecimal), byte]

- Setting of the parameter is only available when the operation of the JW-20CM is stopped.
- Write "00_(H)" to parameter address 007777₍₈₎ and stop operation of the JW-20CM.

(Operation example of JW-13PG)

7 7 7 7 モニタ MNTR B 1
 Display the contents of parameter / address 007777 by hexadecimal. (Write 00_(H).)

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 07775 | HEX | 00 |
| 07776 | HEX | 00 |
| I PARAM. | | |
| >07777 | HEX | 00 |

Reference Function of JW-13PG

- 変換 CONV key: Changeover unit of figures
 → HEX (hexadecimal) → OCT (octal) → DCM (decimal) → Bit pattern
- FORCE LENGTH key: Byte display ↔ Changeover word display

To the next page

From the previous page

“When PC is JW model and the SEND/RECEIVE function is used”

Set time-out time of SEND/RECEIVE function [DCM (decimal), byte]

When the own station uses the SEND/RECEIVE instructions, set the time-out time on each communication target station.

Setting range is 001 (0.1 sec.) to 255 (25.5 sec.) by decimal. 00(H) of initial value is 1 second.

| Address (8) | Station number (8) | Address (8) | Station number (8) | Address (8) | Station number (8) | Address (8) | Station number (8) |
|-------------|--------------------|-------------|--------------------|-------------|--------------------|-------------|--------------------|
| 007500 | Master station | 007520 | 2 0 | 007540 | 4 0 | 007560 | 6 0 |
| 007501 | 0 1 | 007521 | 2 1 | 007541 | 4 1 | 007561 | 6 1 |
| 007502 | 0 2 | 007522 | 2 2 | 007542 | 4 2 | 007562 | 6 2 |
| 007503 | 0 3 | 007523 | 2 3 | 007543 | 4 3 | 007563 | 6 3 |
| 007504 | 0 4 | 007524 | 2 4 | 007544 | 4 4 | 007564 | 6 4 |
| 007505 | 0 5 | 007525 | 2 5 | 007545 | 4 5 | 007565 | 6 5 |
| 007506 | 0 6 | 007526 | 2 6 | 007546 | 4 6 | 007566 | 6 6 |
| 007507 | 0 7 | 007527 | 2 7 | 007547 | 4 7 | 007567 | 6 7 |
| 007510 | 1 0 | 007530 | 3 0 | 007550 | 4 8 | 007570 | 7 0 |
| 007511 | 1 1 | 007531 | 3 1 | 007551 | 5 1 | 007571 | 7 1 |
| 007512 | 1 2 | 007532 | 3 2 | 007552 | 5 2 | 007572 | 7 2 |
| 007513 | 1 3 | 007533 | 3 3 | 007553 | 5 3 | 007573 | 7 3 |
| 007514 | 1 4 | 007534 | 3 4 | 007654 | 5 4 | 007574 | 7 4 |
| 007515 | 1 5 | 007535 | 3 5 | 007555 | 5 5 | 007575 | 7 5 |
| 007516 | 1 6 | 007536 | 3 6 | 007556 | 5 6 | 007576 | 7 6 |
| 007517 | 1 7 | 007537 | 3 7 | 007557 | 5 7 | 007577 | 7 7 |

Initial value: All address 00(H) (1 second)

(In case of setting 020(D) (2 sec.) in parameter addresses 007500(8) (master station) and 007501(8) (slave station 01).)



Display the contents of address 007500(8)

After converting into decimal notation, write the setting value.



Write setting value in address 007501(8)

Screen display of JW-13PG

```

07477 DCM 000
07500 DCM 020
I PARAM.
>07501 DCM 020
    
```

To the next page

From the previous page

“When PC is JW model and the SEND/RECEIVE function is used”

Set PC model of each station [HEX (hexadecimal), byte]

· Assign model type of the communication target station from ZW and JW PCs, ZW-20CM with JW applied or not, or JW-22CM (JW20/20H, JW30H).

| Communication module of target station | PC of target station | |
|--|----------------------|----------|
| | ZW model | JW model |
| ZW-20CM (without JW applied sign) | 00, 80 | 00, 80 |
| ZW-20CM (with JW applied sign) | 81 | 91 |
| JW-20CM | 81 | 91 |
| JW-22CM | 91 ^(H) | |

Setting value^(H)

| Address (8) | Station number (8) | Address (8) | Station number (8) | Address (8) | Station number (8) | Address (8) | Station number (8) |
|-------------|--------------------|-------------|--------------------|-------------|--------------------|-------------|--------------------|
| 007760 | Master station | 007620 | 2 0 | 007640 | 4 0 | 007660 | 6 0 |
| 007601 | 0 1 | 007621 | 2 1 | 007641 | 4 1 | 007661 | 6 1 |
| 007602 | 0 2 | 007622 | 2 2 | 007642 | 4 2 | 007662 | 6 2 |
| 007603 | 0 3 | 007623 | 2 3 | 007643 | 4 3 | 007663 | 6 3 |
| 007604 | 0 4 | 007624 | 2 4 | 007644 | 4 4 | 007664 | 6 4 |
| 007605 | 0 5 | 007625 | 2 5 | 007645 | 4 5 | 007665 | 6 5 |
| 007606 | 0 6 | 007626 | 2 6 | 007646 | 4 6 | 007666 | 6 6 |
| 007607 | 0 7 | 007627 | 2 7 | 007647 | 4 7 | 007667 | 6 7 |
| 007610 | 1 0 | 007630 | 3 0 | 007650 | 4 8 | 007670 | 7 0 |
| 007611 | 1 1 | 007631 | 3 1 | 007651 | 5 1 | 007671 | 7 1 |
| 007612 | 1 2 | 007632 | 3 2 | 007652 | 5 2 | 007672 | 7 2 |
| 007613 | 1 3 | 007633 | 3 3 | 007653 | 5 3 | 007673 | 7 3 |
| 007614 | 1 4 | 007634 | 3 4 | 007654 | 5 4 | 007674 | 7 4 |
| 007615 | 1 5 | 007635 | 3 5 | 007655 | 5 5 | 007675 | 7 5 |
| 007616 | 1 6 | 007636 | 3 6 | 007656 | 5 6 | 007676 | 7 6 |
| 007617 | 1 7 | 007637 | 3 7 | 007657 | 5 7 | 007677 | 7 7 |

1. Initial value: All address 91^(H).
2. Entering both 00^(H) and 88^(H) will produce the identical result. The SEND communication instruction (writing data) is not available with this setting.
3. You cannot program SEND/RECEIVE instructions in a ZW model PC. However, the ZW model PC will respond to SEND/RECEIVE instructions from a JW model PC.

Ex.: When you want to enter 91^(H) at both the master station and at slave station 01 (if the PC a JW model and the I/O is a ZW-20CM with a sticker indicating that it can be used with the JW model).



Display the contents of address 007600⁽⁸⁾

After converting to hexadecimal, write the setting value.



(Write setting value in address 007601⁽⁸⁾)

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 07577 | HEX | 00 |
| 07600 | HEX | 91 |
| I PARAM. | | |
| >07601 | HEX | 91 |

To the next page

From the previous page

“When PC is JW model and the SEND/RECEIVE function is used”

V5

Select system in each channel in SEND/RECEIVE function

Select the method of each channel (instruction or data memory starting) on the parameter address 007700 to 007703⁽⁸⁾.

| | |
|-----------------------|------|
| 007700 ⁽⁸⁾ | CH 0 |
| 007701 ⁽⁸⁾ | CH 1 |
| 007702 ⁽⁸⁾ | CH 2 |
| 007703 ⁽⁸⁾ | CH 3 |

1. When using 1 channel alone

| Channel | Setting value ^(H) | System |
|---------|------------------------------|-----------------------------|
| CH 0 | 0 0 | Instruction system |
| | 8 0 | Data memory starting system |
| CH 1 | 0 0 | Instruction system |
| | 8 1 | Data memory starting system |
| CH 2 | 0 0 | Instruction system |
| | 8 2 | Data memory starting system |
| CH 3 | 0 0 | Instruction system |
| | 8 3 | Data memory starting system |

2. When using connected channels (see page 10-2)

In the SEND/RECEIVE function, the JW-22CM can transfer and receive a maximum of 256 bytes of data for each channel. For the data memory starting system, the amount of communication data can be increased by connecting channels.

Set the data amount with 8X^(H) (X is 0 to 3, determined depending on which channel is used for the connector.)

When using connected channels, these should be consecutive channels. For example, channel 0 and 1, or channel 2 and 3 can be connected to each other, but channel 1 and 3 can not be connected to each other.

[Example 1] When all channels are used for the data memory starting system (using 1 channel alone)

| | | |
|------|-----------------------|--------------------|
| CH 0 | 007700 ⁽⁸⁾ | 8 0 ^(H) |
| CH 1 | 007701 ⁽⁸⁾ | 8 1 ^(H) |
| CH 2 | 007702 ⁽⁸⁾ | 8 2 ^(H) |
| CH 3 | 007703 ⁽⁸⁾ | 8 3 ^(H) |

[Example 2] When channel 0 is used for the instruction system, and channel 1 to 3 are the data memory starting system and used connected.

(In this case, channel 2 and 3 can not be used.)

| | | |
|------|-----------------------|--------------------|
| CH 0 | 007700 ⁽⁸⁾ | 8 0 ^(H) |
| CH 1 | 007701 ⁽⁸⁾ | 8 1 ^(H) |
| CH 2 | 007702 ⁽⁸⁾ | 8 1 ^(H) |
| CH 3 | 007703 ⁽⁸⁾ | 8 1 ^(H) |

If values other than “00^(H), 80 to 83^(H)” are set, they will be ignored.

To the next page

From the previous page

“When PC is JW model and the SEND/RECEIVE function is used”

V5

Set top address in communication information storage area when using data memory system of SEND/RECEIVE function

· Set file address₍₈₎ in parameter addresses 007710 to 007713₍₈₎.

| | | |
|-----------------------|---|--|
| 007710 ₍₈₎ | Lower | } Top address of communication information storage area (file address) |
| 007711 ₍₈₎ | Upper | |
| 007712 ₍₈₎ | File number of communication information storage area | |
| 007713 ₍₈₎ | This setting is valid by 80 _(H) | |

“When PC is JW model and the memory capacity save function is used”

V5

Set the number of sending bytes of the relay link in save memory function [DCM (decimal), word]

· Set the number of sending bytes in decimal on the parameter address 007720 to 007721₍₈₎.

| | |
|-----------------------|-------|
| 007720 ₍₈₎ | Lower |
| 007721 ₍₈₎ | Upper |

· In case of setting 4 bytes using JW-13PG: Example for slave station 02 of page 9-41

アドレス 7 7 2 0 モニタ → Display the contents of parameter addresses 007720 to 007721₍₈₎
変換 変換 4 書込 → Write 00004_(D) after converting to decimal

Screen display of JW-13PG

| | | |
|----------|---|-------|
| 07714 | D | 00000 |
| 07716 | D | 00000 |
| I PARAM. | | |
| >07720 | D | 00004 |

| | |
|-----------------------|----------------------|
| 007720 ₍₈₎ | 00004 _(D) |
| 007721 ₍₈₎ | |

“When PC is JW model and the memory capacity save function is used”

V5

Set the number of receiving bytes of register link in save memory function

Set the number of sending bytes in decimal on the parameter address 007722 to 007723₍₈₎.

| | |
|-----------------------|-------|
| 007722 ₍₈₎ | Lower |
| 007723 ₍₈₎ | Upper |

· In case of setting 8 bytes for parameter addresses 007722 to 007723₍₈₎ using JW-13PG: Example for slave station 02 of page 9-41

アドレス 7 7 2 2 モニタ → Display the contents of parameter addresses 007722 to 007723₍₈₎
SET 書込 8 → Write 00008_(D)

Screen display of JW-13PG

| | | |
|----------|---|-------|
| 07716 | D | 00000 |
| 07720 | D | 00004 |
| I PARAM. | | |
| >07722 | D | 00008 |

| | |
|-----------------------|----------------------|
| 007722 ₍₈₎ | 00008 _(D) |
| 007723 ₍₈₎ | |

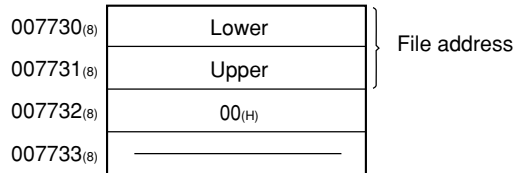
To the next page

From the previous page

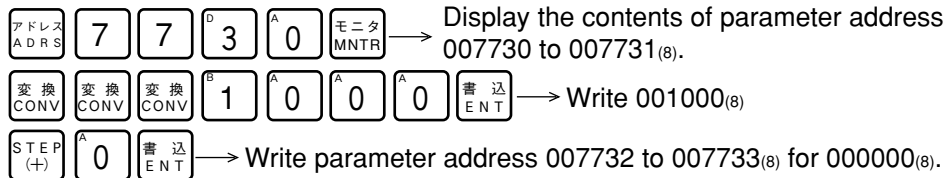
“When PC is JW model and the memory capacity save function is used”

V5 **Set top address of relay link area.** [File address: OCT (octal), word
File number/flag: HEX (hexadecimal), byte]

- Set file address in parameter address 007730 to 007733₍₈₎.
These top addresses should not overlap the register link area, flag area, or any area used by other option module.



In case of setting 01000 (file address 001000₍₈₎) using JW-13PG : Example for slave station 02 of page 9-41.



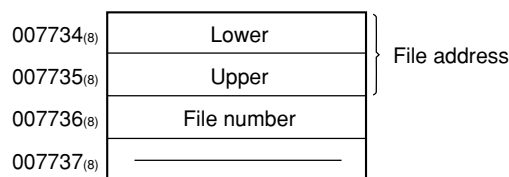
Screen display of JW-13PG

| | | |
|----------|---|--------|
| 07726 | 0 | 000000 |
| 07730 | 0 | 001000 |
| I PARAM. | | |
| >07732 | 0 | 000000 |

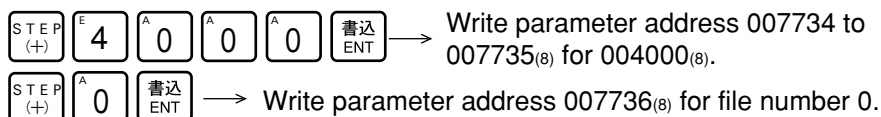
“When PC is JW model and the memory capacity save function is used”

V5 **Set register link area of register link area.** [File address: OCT (octal), word
File number/flag: HEX (hexadecimal), byte]

- Set file address in parameter address 007734 to 007737₍₈₎.
These top addresses should not overlap the relay link area, flag area, or any area used by other option module.



In case of setting 09000 (file address 004000₍₈₎) using JW-13PG : Example for slave station 02 of page 9-41.



Screen display of JW-13PG

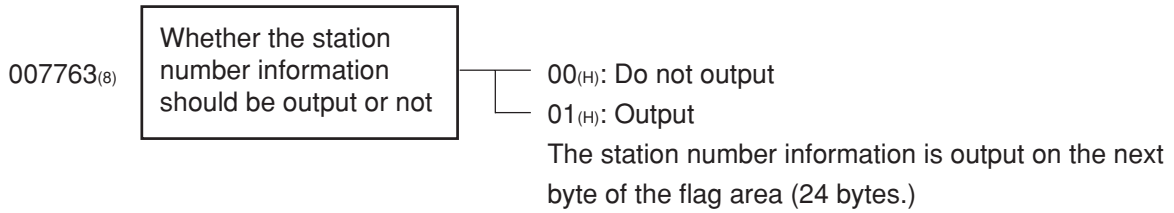
| | | |
|----------|---|-------|
| 07716 | D | 00000 |
| 07720 | D | 00004 |
| I PARAM. | | |
| >07722 | D | 00008 |

To the next page

From the previous page

V5 Set whether the station number information should be output or not

- Set whether the station number information should be output or not on the parameter address 007763₍₈₎.



V5 Set top address of flag area [File address: OCT (octal), word
File number/flag: HEX (hexadecimal), byte]

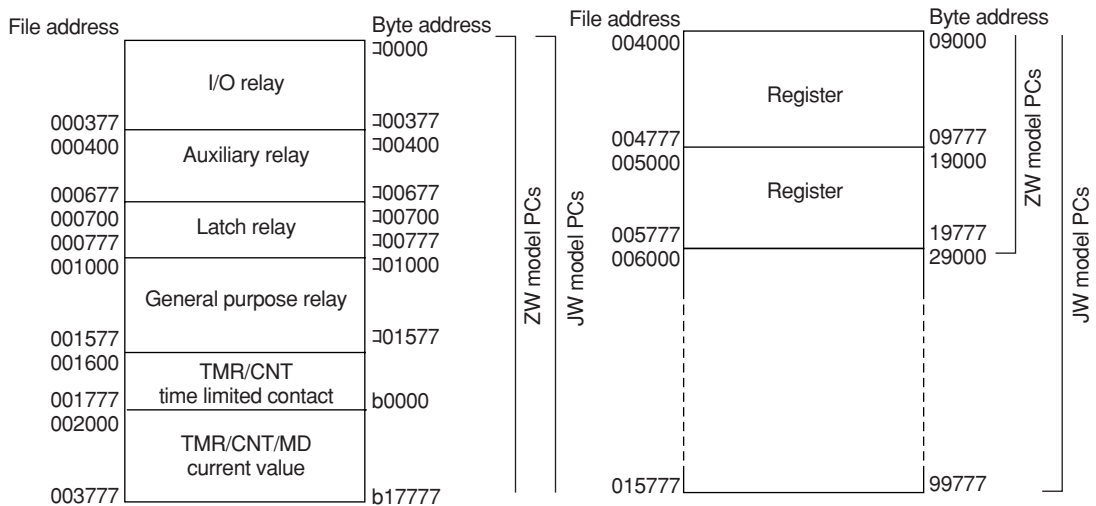
- Set the top address of the flag area (24 bytes) in order to monitor the communication condition and PC operation condition on the parameter address 007764 to 007767₍₈₎.
- Flag area uses 24 bytes regardless number of connecting stations.

| | Contents | Initial value | |
|-----------------------|----------------|-------------------|---|
| 007764 ₍₈₎ | Lower | E0 _(H) | Byte address 01E0 _(H) → 000740 ₍₈₎ → 740 |
| 007765 ₍₈₎ | Upper | 01 _(H) | |
| 007766 ₍₈₎ | File number | 00 _(H) | File number 0 |
| 007767 ₍₈₎ | D ₇ | 80 _(H) | Output flag |

Output flag : ON
Do not output flag : OFF

Remarks

- The PC's input/output relays, auxiliary relays, registers etc. are all allocated individual byte addresses for each item. However, the JW-20CM can assign these addresses with file addressees allocated throughout the memory.



- The usable file numbers will vary with the memory module that is installed on the PC.

| Name of memory module | Usable file numbers |
|-----------------------|------------------------|
| ZW-1MA, JW-1MAH | 0 or 1※ |
| ZW-2MA, JW-2MAH | 0 or 1 |
| ZW-3MA, JW-3MAH | 0, 1, 2 |
| ZW-4MA, JW-4MAH | 0, 1, 2, 3, 4, 5, 6, 7 |

※ If file number is 1, file address shall be within 000000 to 037777₍₈₎.
(See page 13·20 and 21 for other cases.)

To the next page

From the previous page

Enter communication error detection interval [DCM (decimal), byte]

- If the JW-20CM does not receive data from a station within the specified time (initial value: 250 ms when fewer than 32 stations are connected, 450 ms when more than 33 stations are connected), it turns OFF the communication monitor flag corresponding to this station. The specified time can be changed by entering a different value at parameter address 007771₍₈₎ (communication error detection time). Use the same value for all the stations.

Normally, this value does not need to be changed. Use the modules with the initial value (00_(H)).

| Set value _(D) | Communication error detection time (ms) |
|--------------------------|---|
| 000 | Initial value: 250 ms for fewer than 32 stations, 450 ms for more than 33 stations. |
| 001 | 100 |
| 002 | 200 |
| 003 | 300 |
| 004 | 400 |
| 005 | 500 |
| 006 | 600 |
| ⋮ | ⋮ |
| 010 | 1000 |
| ⋮ | ⋮ |
| 255 | 2500 |

* Detection time precision:
-100 ms to +0 ms

Ex.: If the PC scan time is extremely long (exceeds the time specified above), the communication monitor flag will turn OFF, even though there is no communication error. In this case, change the value at parameter address 007771₍₈₎ to a larger number.

To the next page

From the previous page

Writing to the EEPROM of the JW-20CM, start operation [HEX (hexadecimal), byte]

- Write "81_(H)" into parameter address 007777₍₈₎ and write the set parameter contents into the EEPROM of the JW-20CM. Then start the JW-20CM.
- After starting operation, the setting value changes to "01_(H)."

| Setting value _(H) | Contents |
|------------------------------|---|
| 0 0 | Stop operation of the JW-20CM |
| 0 1 | Start operation of the JW-20CM |
| 8 0 | Writing to the EEPROM of the JW-20CM, stop operation |
| 8 1 | Writing to the EEPROM of the JW-20CM, start operation |
| 0 8 | Initialize parameters |



Display the contents of address 007777₍₈₎ Write 81_(H)

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 07775 | HEX | 00 |
| 07776 | HEX | EC |
| I PARAM. | | |
| >07777 | HEX | 81 |

Remarks

- Writing time to EEPROM is approximately 0.7 sec. When any error is found for parameter settings, the JW-20CM lights the error code (6F_(H)) by the indication lamp.
When error code 6F_(H) lights,
 - ① Check flag top address
 - ② If the master station also lights up with error code 6F_(H), check the top address and number of bytes in the relay link and register link in the master station which corresponds to the slave station in which the error occurred.
- Written contents into the EEPROM are automatically transferred to the RAM of the JW-20CM when turning ON the power of the PC. At transferring, the PC checks BCC and compares BCC check code of the parameter memory address (007776₍₈₎). When an error is found, the JW-20CM lights the error code (6E_(H)) by the indication lamp.
- If "parameter initialization" is selected, the module initializes parameter addresses 004000 to 007776₍₈₎.

PC operation

Turning a slave module to monitor or change mode (PC operation).
(Operation example of using JW-13PG)

- * * MNTR MODE SET 8 → Monitor mode
- * * CHNG MODE SET 8 → Change mode

Screen display of JW-13PG

| |
|--------|
| C00000 |
| > |

9-7 Setting contents of master station parameters

[1] Setting contents

When the JW-20CM is used as a master station, set the following items for parameters after setting switches.

For details of the parameter memory, see pages 13-9 to 15.

※ Corresponding signs on pages 9-35 to 37

| Item | Address (8) | Initial value (H) | Contents (setting range) | ※ |
|---|------------------|-------------------|---|-----------------------------------|
| ① Top address of relay link area on the master station | 004000 to 004001 | 00 | Set file address by octal notation (File 0: 000000 to 007777) | a ₀ |
| ② Function | 004002 | 00 | Set to 01(H) | — |
| ③ Number of connected stations | 004003 | 00 | Set number of stations including master stations by decimal (2 to 64) | — |
| ④ Relay link area top address or number of offset bytes on slave station 01 to 77(8) | 004004 to 004377 | 00 | When a slave station is data link (standard function), set the top address by file address (8) (See page 13-20 and 21) When a slave station is data link (memory save function), set the number of offset bytes by decimal. (000000 to 00256(D)) | a ₁ to a ₇₇ |
| ⑤ Register link area top address on the master station | 004400 to 004403 | 00 | Set file address by octal notation File 0: 000000 to 15777(8) File 1 to 7: 000000 to 177777(8) | b ₀ |
| ⑥ Register link area top address or number of offset bytes on slave station 01 to 77(8) | 004404 to 004777 | 00 | When a slave station is data link (standard function), set the top address by file address (8) (See page 13-20 and 21) When a slave station is data link (memory save function), set the number of offset bytes by decimal. (000000 to 02048(D)) | b ₁ to b ₇₇ |
| ⑦ Number of relay link sending bytes of master station | 005000 to 005001 | 00 | Set the number of bytes by decimal (0 to 256, within 0 to 256 in total) | c ₀ |
| ⑧ Set number of relay link sending bytes of slave station 01 to 77(8) | 005002 to 005177 | 00 | Set the number of bytes by decimal (0 to 256, within 0 to 256 in total) | c ₁ to c ₇₇ |
| ⑨ Number of register link sending bytes of master station | 005200 to 005201 | 00 | Set the number of bytes by decimal (0 to 2048, within 0 to 2048 in total) | d ₀ |
| ⑩ Set number of relay link sending bytes of slave station 01 to 77(8) | 005002 to 005377 | 00 | Set the number of bytes by decimal (0 to 2048, within 0 to 2048 in total) | d ₁ to d ₇₇ |
| ⑪ Time-out time of SEND/RECEIVE instruction | 007501 to 007577 | 00 | Set time-out time in decimal [001 (0.1 sec.) to 255 (25.5 sec.)] | — |
| ⑫ Set PC type of each station in SEND/RECEIVE function | 007601 to 007677 | 91 | Select from "00, 80, 81, or 91" by hexadecimal | |
| ⑬ Select system of each channel | 007700 to 007703 | 00 | Select instruction system or data memory starting system in CH0 to CH3 | |
| ⑭ Top addresses in communication information storage area when using data memory starting system. | 007710 to 007713 | 00 | Set by file number and file address - Setting range of communication information storage area (64 bytes) File 0: 000000 to 015777(8) File 1 to 7: 000000 to 177777(8) | |

※ 1

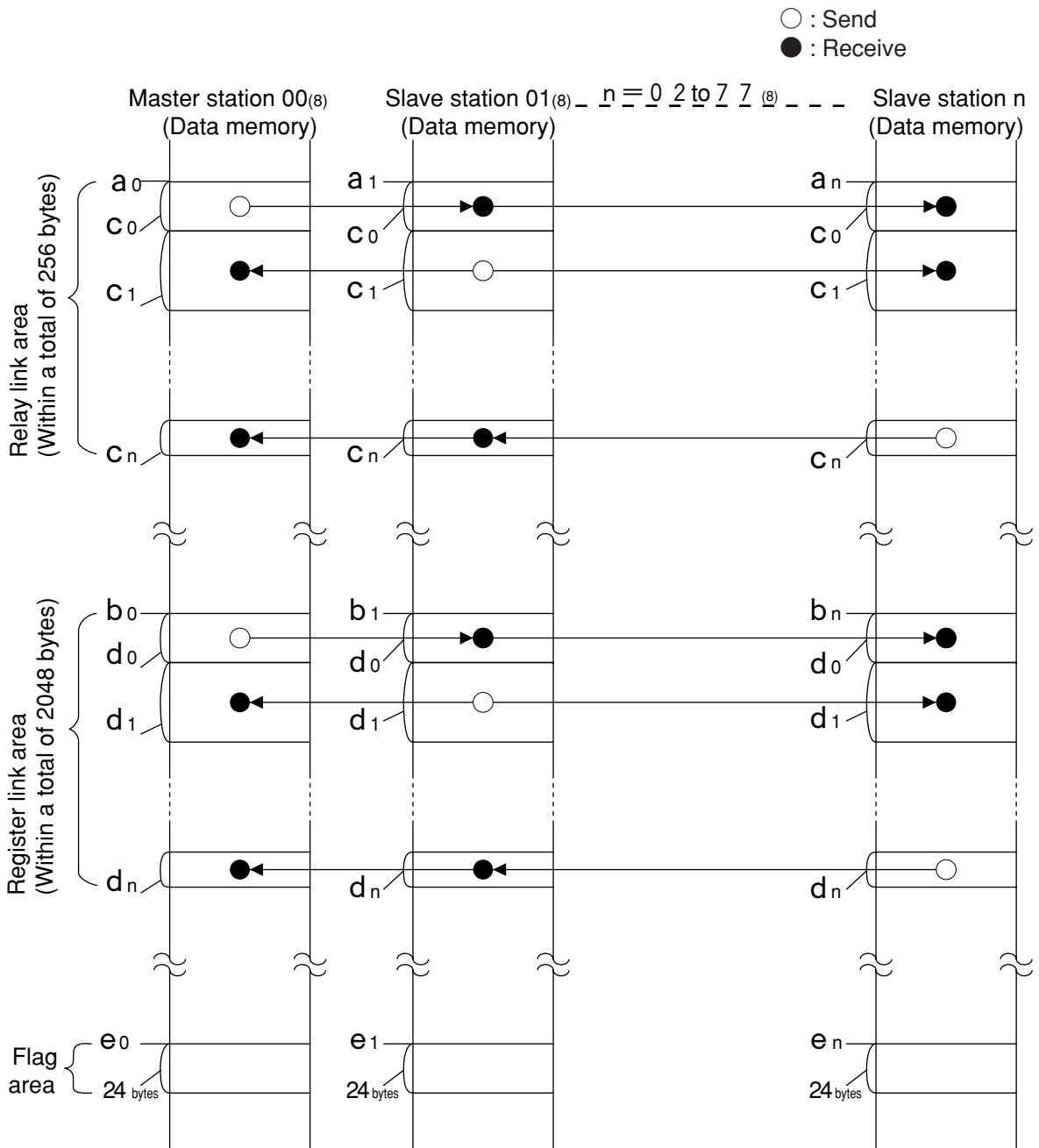
※ 1 : Set only when the PC is a JW model using the SEND/RECEIVE function.

| | Item | Address (8) | Initial value (H) | Contents (setting range) | ※ |
|---|---|------------------|-------------------|--|----|
| ⑮ | Connection status of slave station (error code output) | 007750 to 007757 | 00 | Turn ON a bit corresponding to each station (See page 13-15) | — |
| ⑯ | Whether or not to output the station number information [V5] | 007763 | 00 | Store the number of own station in the data memory when setting on 01(H) (storage area of 1 byte follows flag area of 24 bytes, valid when 007767(8) is 80(H)) | |
| ⑰ | Flag area top address (communication and PC operation condition monitor flag) | 007764 | E0 | File address lower bits | e0 |
| | | 007765 | 01 | File address upper bits | |
| | | 007766 | 00 | File number (00(H) only) | |
| | | 007767 | 80 | Flag output (Yes: 80(H), No: 00(H)) | |
| ⑱ | Communication error detection time | 007771 | 00 | Settable detection time with 100 ms pitch | — |
| ⑲ | - Start/stop operation - Write to EEPROM | 007777 | 01 | 00(H): Stop operation | — |
| | | | | 01(H): Start operation | |
| | | | | 80(H): Stop writing to EEPROM/operation | |
| | | | | 81(H): Start writing to EEPROM/operation | |
| | | | | 08(H): Initialize parameter | |

• ① to ⑲ correspond to numbers in page 9-38.

[2] Communication area map

(1) In case that setting data link (the standard function) when the master station and all slave stations are JW-20CM.

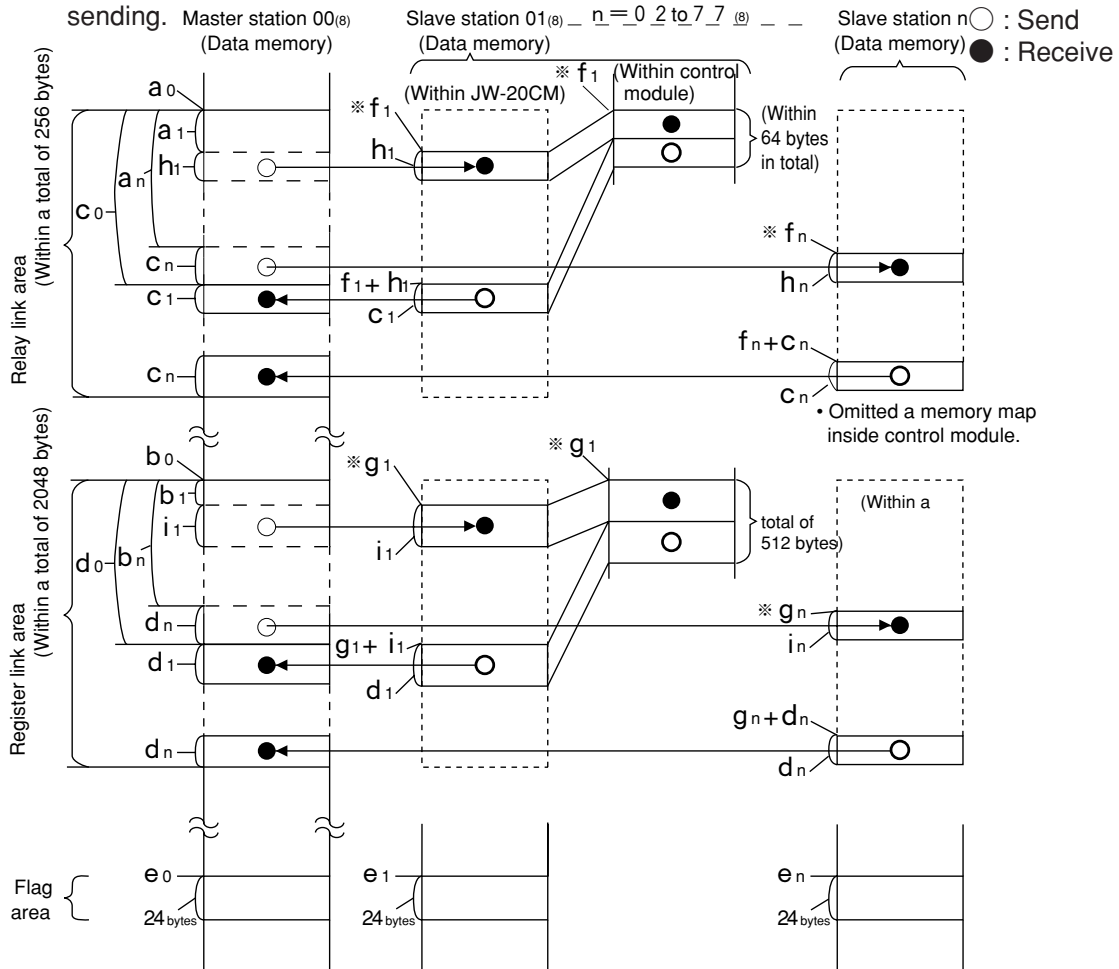


- Set the relay link area, register link area, flag area within the setting range nominated in page 13·20, 21. However, be careful not to double any address allocation of these.
- Set a_0 to e_n for parameters of master station and slave station. (See page 9·22, 33 and 34)

| Parameter for setting in master station | Parameter for setting in slave station |
|---|---|
| Top address of relay link area a_0, a_1 to a_n | Top address of flag area (slave station) e_1 to e_n |
| Top address of register link area b_0, b_1 to b_n | / |
| Number of sending bytes of relay link area c_0, c_1 to c_n | |
| Number of sending bytes of register link area d_0, d_1 to d_n | |
| Top address of flag area (master station) e_0 . | |

(2) In case that setting the data link (V5 memory capacity save function) when the master station and all slave stations are JW-20CM.

Memory addresses inside control module of slave station continue in order of receiving and sending.



- Set the relay link area, the register link area, and the flag area within the settings range of page 13-20, 21. Be careful not to double any address allocation of these.
- Set "a₀" to "i_n" above for parameters of master station and slave station (see page 9-22, 33 and 34).

| Parameter for setting in master station | Parameter for setting in slave station |
|---|--|
| Top address of relay link area a ₀ , a ₁ to a _n | Top address of flag area (slave station) e ₁ to e _n |
| Top address of register link area b ₀ , b ₁ to b _n | Number of receiving bytes of relay link area h ₁ to h _n |
| Number of sending bytes of relay link area c ₀ , c ₁ to c _n | Number of receiving bytes of register link area i ₁ to i _n |
| Number of sending bytes of register link area d ₀ , d ₁ to d _n | |
| Top address of flag area (master station) e ₀ . | |

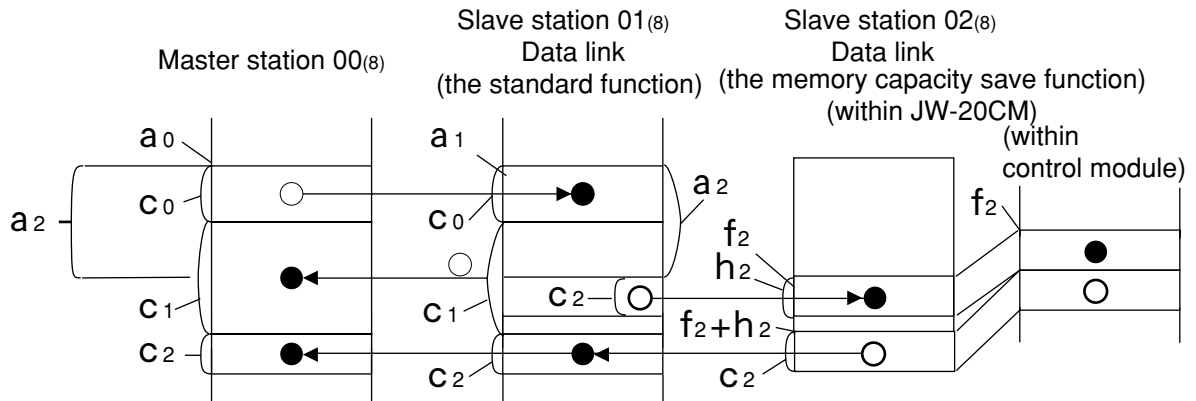
- Set the receiving area for save memory function within the range of the link area.
 - $0 \leq a_1 \leq$ Total number of bytes of relay link area -h₁
 - $0 \leq a_n \leq$ Total number of bytes of relay link area -h_n
 - $0 \leq b_1 \leq$ Total number of bytes of register link area -i₁
 - $0 \leq a_n \leq$ Total number of bytes of register link area -i_n

- Number of receiving bytes of slave station (h_1 to h_n , i_1 to i_n)
Select self-setting or “same as number of sending bytes (c_1 to c_n , d_1 to d_n)” according to parameter (007720 to 007723) of slave station.
- Number of offset bytes can be set exceeding the number of sending bytes of the master station.
 $a_1, a_n \geq c_0$ and $b_1, b_n \geq d_0$

(3) When the master station and slave stations are all JW-20CM and both data link (the standard function) and data link (V5 memory capacity save function) are set among slave stations.

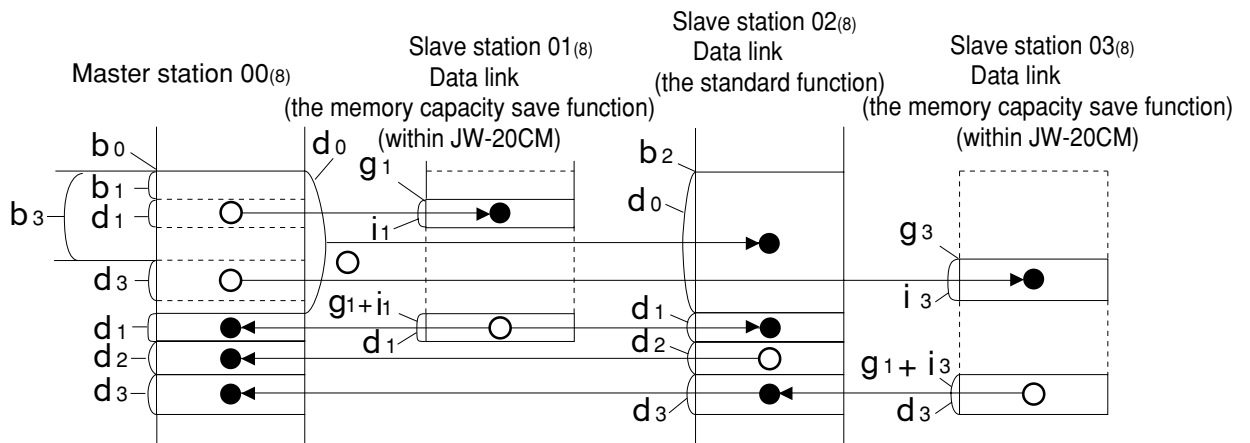
Set signs below by the parameters of the master station (page 9-22, 33 and 34).

- An example of a relay link area map for the setting of the data link (standard function) for slave station 01 and the data link (memory capacity save function) to slave station 02.



$$\left(\begin{array}{l} \text{Total number of bytes of relay link area } (C_0 + C_1 + C_2) \leq 256 \text{ bytes} \\ C_2 + h_2 \leq 64 \text{ bytes} \quad 0 \leq a_2 \leq C_0 + C_1 \end{array} \right)$$

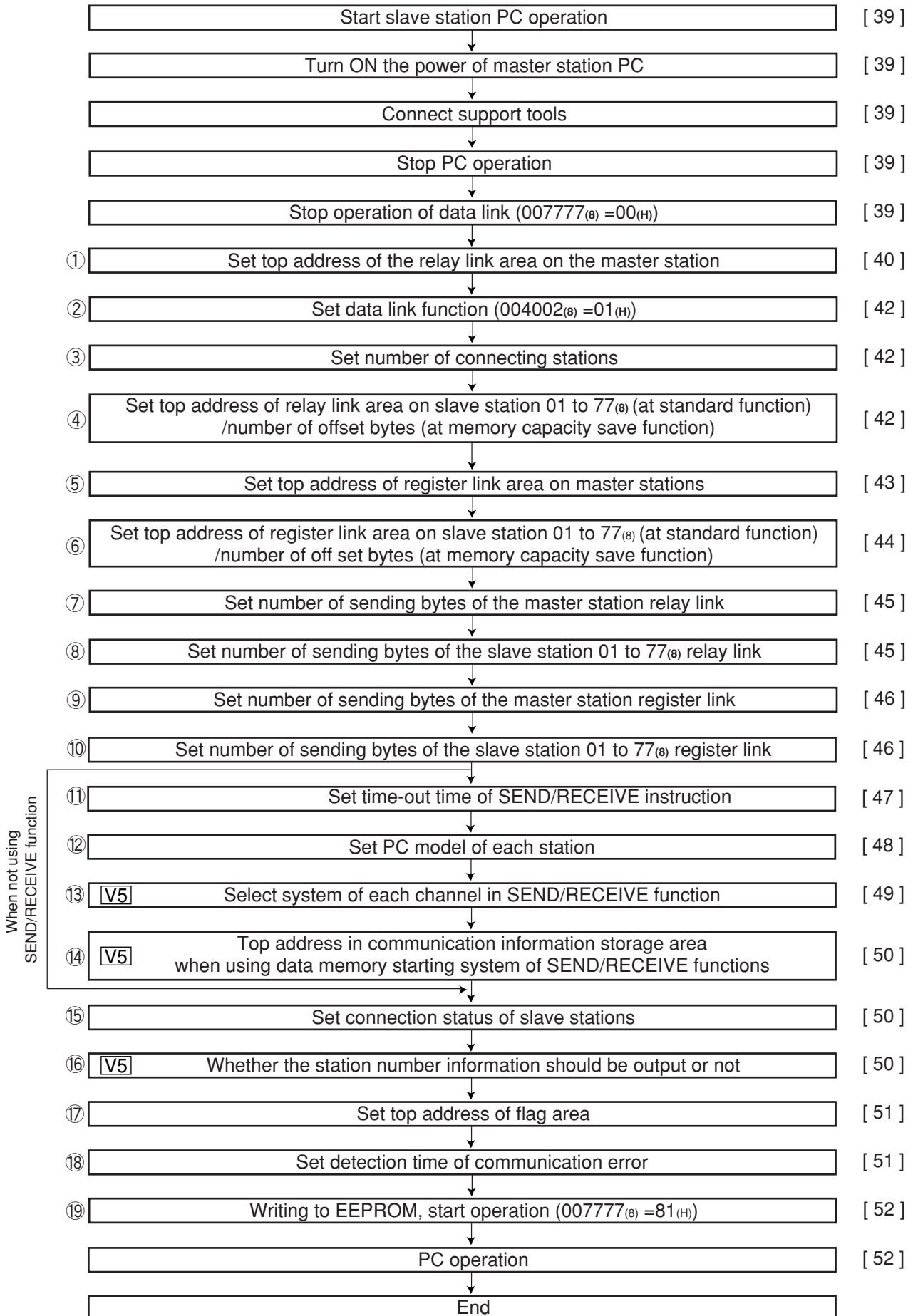
- An example of register link area map for the setting of the data link (the save memory function) to slave station 01 and 03 and data link (the standard function) to slave station 02.



$$\left(\begin{array}{l} \text{Total number of bytes of register link area } (d_0 + d_1 + d_2 + d_3) \leq 2048 \text{ bytes} \\ 0 \leq b_1 \leq d_0 + d_2 + d_3 \quad 0 \leq b_3 \leq d_0 + d_1 + d_2 \\ i_1 + d_1 \leq 512 \quad i_3 + d_3 \leq 512 \end{array} \right)$$

[3] Setting procedure

In brackets: See page in chapter 9



① to ⑲ correspond to numbers in page 9-33.

“Run” the slave station PC

Turn “ON” the power of the master station PC and connect support tools

- Connect a support tool with the JW-20CM and prepare the setting parameter.

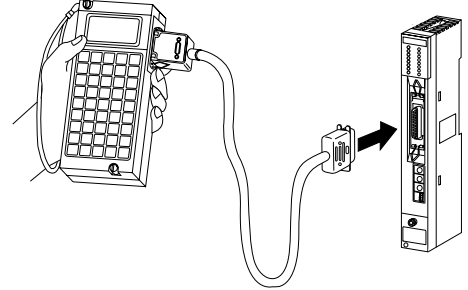
<Usable support tools>

JW-13PG/12PG

JW-50SP

JW-50PG, Z-100LP2S

- For operation of each support tool, see the instruction manual attached. The following describes an example of JW-13PG’s key operation.



Stop PC operation

- Turn to program mode (stop PC operation). Setting of parameters is only available when the PC is in program mode.

(Operation example of JW-13PG)

***** ***** **PROG MODE** **SET 8** → Stop PC operation

クリア CLR ***** ***** **ソフト SHIF** **INTL DISP** **SET 8** **1** → Select parameter setting mode.
 Select initial mode (Parameter setting)

Stop operation of data link [HEX (hexadecimal), byte]

- Setting of the parameter is only available when the operation of the JW-20CM is stopped.
- Write “00_(H)” to parameter address 007777₍₈₎ and stop operation of the JW-22CM.

(Operation example of JW-13PG)

7 **7** **7** **7** **モニタ MNTR** **A 0** **書込 ENT**
 Display the contents of parameter address 007777 by hexadecimal. (Write 00_(H))

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 07775 | HEX | 00 |
| 07776 | HEX | 00 |
| I PARAM. | | |
| >07777 | HEX | 00 |

Reference Function of JW-13PG

- **変換 CONV** key: Changeover unit of figures
 → HEX_(hexadecimal) → OCT_(octal) → DCM_(decimal) → Bit pattern
- **FORCE LENGH** key: Byte display ↔ Changeover word display

To the next page

From the previous page

Set top address of the relay link area on the master station [OCT (octal), word]

- Set file address₍₈₎ to parameter address 004000 to 004001₍₈₎.
These top addresses should not overlap the register link area, flag area, or any area used by other option module.

In case of setting 00210 (file address 000210₍₈₎) using JW-13PG : Example for slave station of page 9-41.



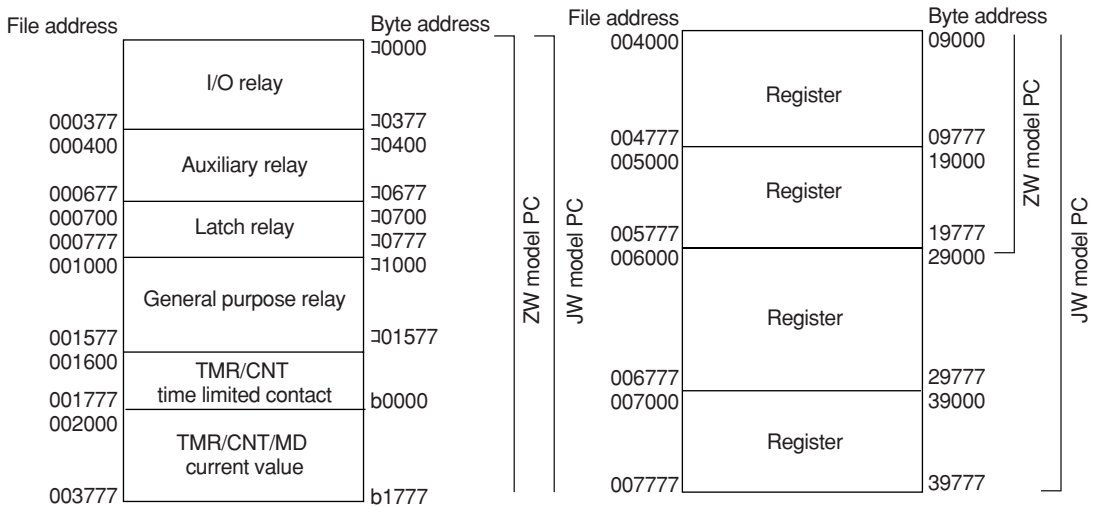
Display the contents of address 004000₍₈₎ (Word display) After converting to octal, write the data 000210.

Screen display of JW-13PG

| | | |
|----------|---|--------|
| 03774 | 0 | 000000 |
| 03776 | 0 | 000000 |
| I PARAM. | | |
| >04000 | 0 | 000210 |

Remarks

- The PC's input/output relays, auxiliary relays, registers etc. are all allocated individual byte addresses for each item. However, the JW-20CM can assign these addresses with file addressees allocated throughout the memory.



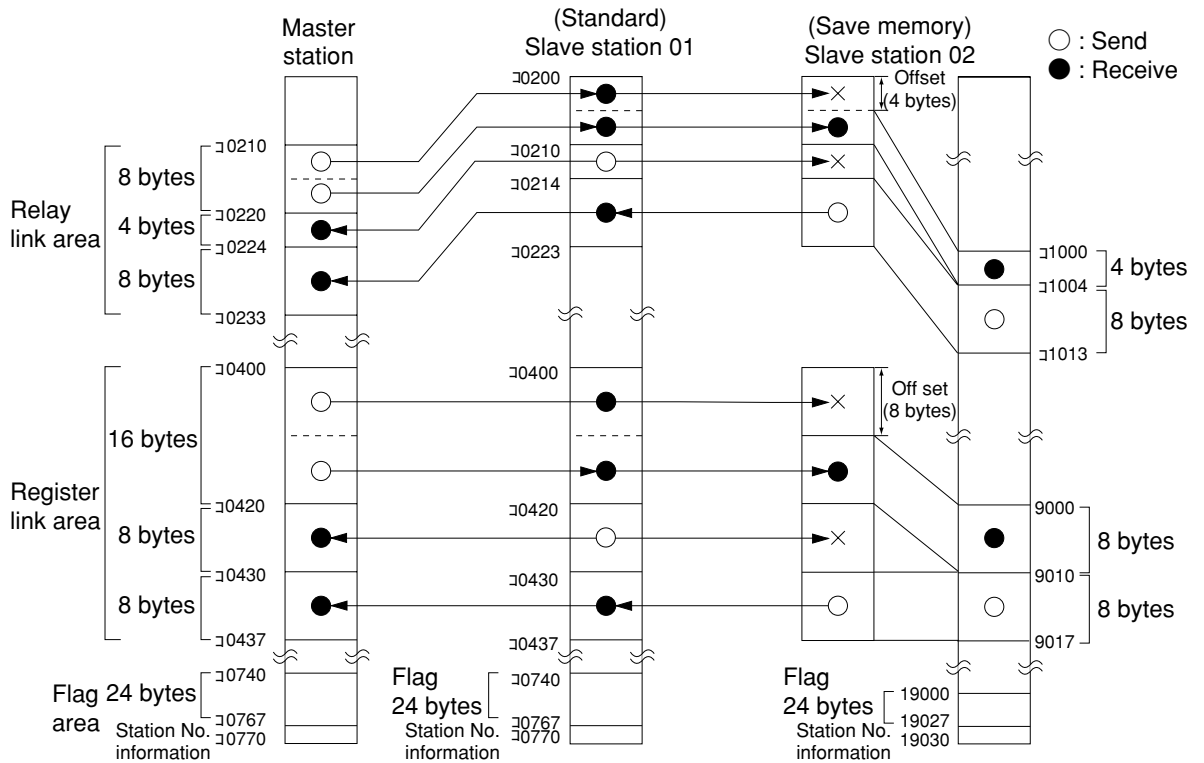
To the next page

From the previous page

[Example for setting]

The master station and slave station 01 and 02 are JW-20CM.

It shows example for setting that slave station 01 is data link (standard function) and slave station 02 is data link (memory capacity save function : **[V5]**).



| | Maser station | Slave station 1 (standard) | Slave station 2 (save memory) |
|---|---------------|----------------------------|-------------------------------|
| Top address of relay link area | 10210 | 10200 | ※ 10100 |
| Number of off set bytes of relay link area | — | — | 4 bytes |
| Number of sending bytes of relay link | 8 bytes | 4 bytes | 8 bytes |
| Number of receiving bytes of relay link | — | — | ※ 4 bytes |
| Top address of register link area | 10400 | 10400 | ※ 09000 |
| Number of off set bytes of register link area | — | — | 8 bytes |
| Number of sending bytes of register link | 16 bytes | 8 bytes | 8 bytes |
| Number of receiving bytes of register link | — | — | ※ 8 bytes |
| Top address of flag area | 10740 | ※ 10740 | ※ 19000 |
| Station number information output | Yes | ※ Yes | ※ Yes |

No mark -- Setting by parameter of master station
 ※ ----- Setting by parameter of slave station

To the next page

From the previous page

Data link function setting [HEX (hexadecimal), byte]

- Set "01_(H) (=001₍₈₎)" in parameter address 004002₍₈₎ and change to "relay/register link."

(Operation example of JW-13PG)

STEP (+) FORCE LENGTH 1 書込 ENT → Write 001₍₈₎ to 004002₍₈₎

Screen display of JW-13PG

| | | |
|----------|-----|-----|
| 04000 | HEX | 880 |
| 04001 | HEX | 00F |
| I PARAM. | | |
| >04002 | HEX | 01 |

Set number of connecting stations [DCM (decimal), byte]

- Set the number of connecting stations (02 to 64_(D)) including the master station in the parameter address 004003₍₈₎ by octal.
- If you try to set values other than 02 to 64_(D), JW-20CM the displays 6F_(H) error code.

STEP (+) 変換 CONV 3 書込 ENT → After converting into decimal notation in 004003₍₈₎, write "003."

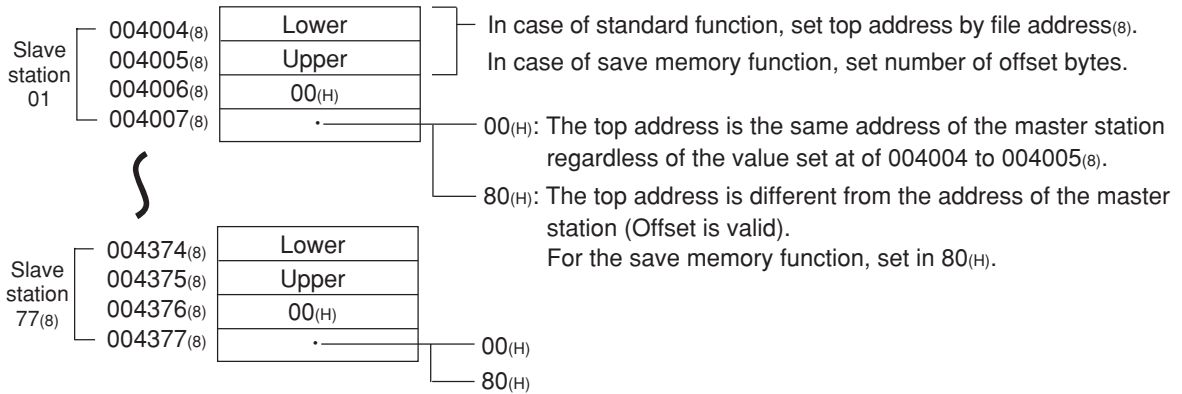
Screen display of JW-13PG

| | | |
|----------|-----|-----|
| 04001 | DCM | 000 |
| 04002 | DCM | 001 |
| I PARAM. | | |
| >04003 | DCM | 003 |

Set top address of relay link area on slave station (01 to 77) (at standard function)/number of offset bytes (memory capacity save function)

File address: OCT (octal), word
File number/flag: HEX (hexadecimal), byte
Set the "same" as or "different" from the master station: HEX (hexadecimal), bytes.

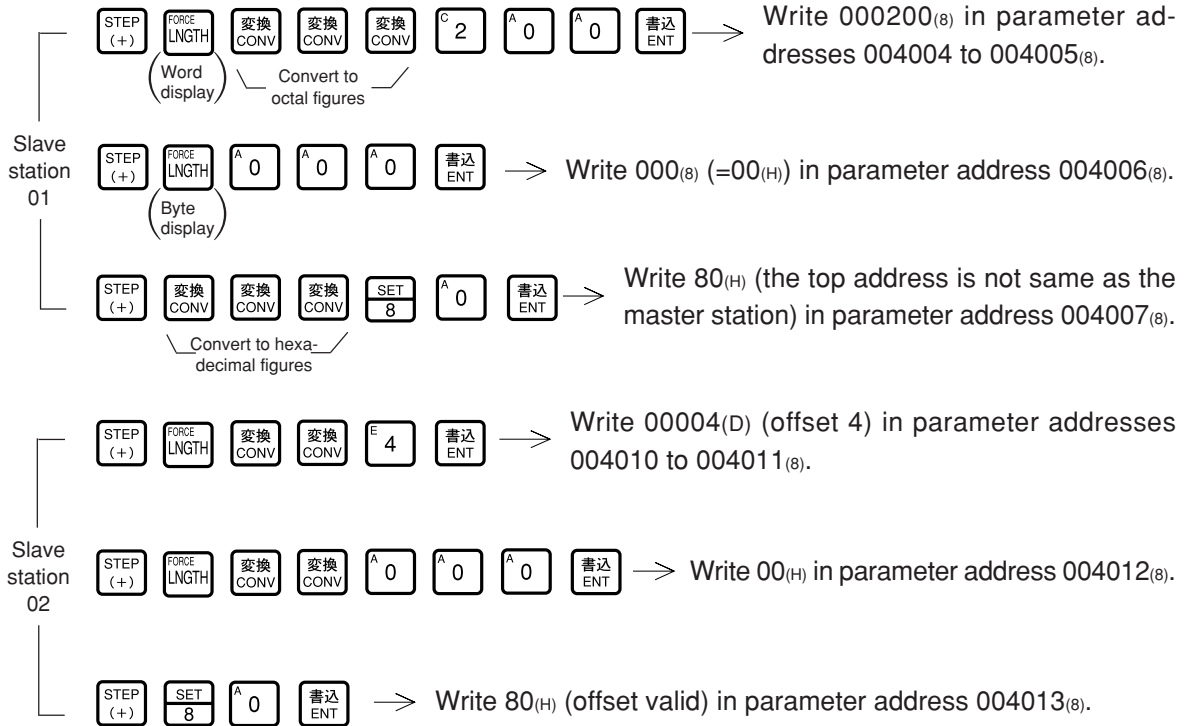
- Set in parameter addresses 004004 to 004377₍₈₎. These top addresses should not overlap the register link area, flag area, or any area used by other option module.



- In case of setting 10200 (file address 000200₍₈₎) in parameter addresses 004004 to 004007₍₈₎ (slave station 01) and set 4 (number of off set bytes) in 004010₍₈₎ to 004013₍₈₎ (slave station 02). (Example for page 11·10.)

To the next page

From the previous page



Screen display of JW-13PG

| | | |
|----------|-----|----|
| 04011 | HEX | 00 |
| 04012 | HEX | 00 |
| I PARAM. | | |
| >04013 | HEX | 80 |

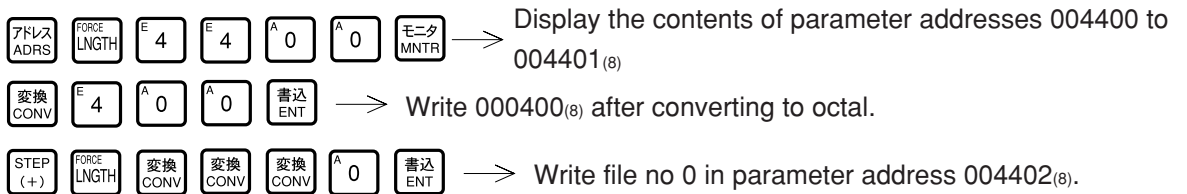
Set top address of register link area on the master station

File address: OCT (octal), word
File number: HEX (hexadecimal), bytes.

Set on the parameter address (004400 to 004403₍₈₎) in the file address₍₈₎. These top addresses should not overlap the register link area, flag area, or any area used by other option modules.

| | | |
|-----------------------|-------------|----------------|
| 004400 ₍₈₎ | Lower | } File address |
| 004401 ₍₈₎ | Upper | |
| 004402 ₍₈₎ | File number | |
| 004403 ₍₈₎ | _____ | |

- In case of setting 00400 (file address 000400₍₈₎) in parameter addresses 004400 to 004403₍₈₎ and set 0 (file number) in 004402₍₈₎. (Example for page 9-41).



Screen display of JW-13PG

| | | |
|----------|-----|-----|
| 04400 | OCT | 000 |
| 04401 | OCT | 001 |
| I PARAM. | | |
| >04402 | OCT | 000 |

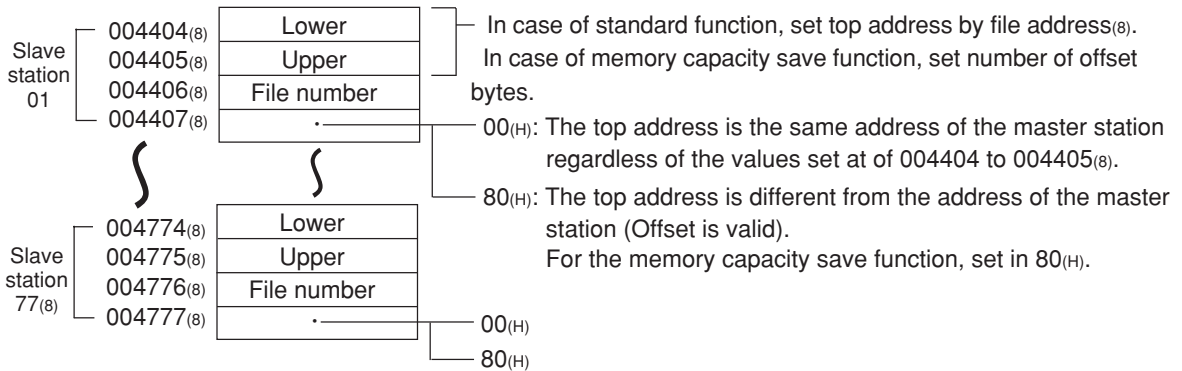
To the next page

From the previous page

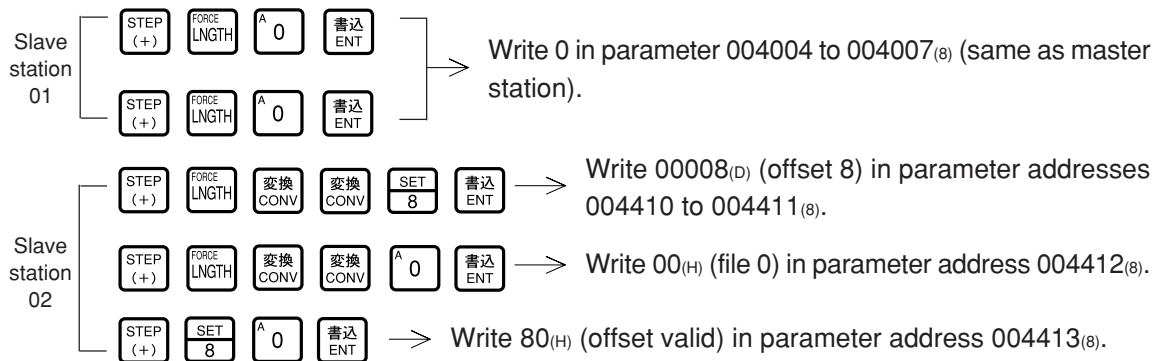
**Set top address of register link area on slave station 01 to 77⁽⁸⁾ (at standard function)/
number of offset bytes (at memory capacity save function)**

**File address: OCT (octal), word
File number/flag: HEX (hexadecimal), byte
Set the "same" as or "different" from the
master station: HEX (hexadecimal) , bytes.**

Set in parameter addresses 004404 to 004777⁽⁸⁾. These top addresses should not overlap the register link area, flag area, or any area used by other option module.



- In case of setting 0 (the top address is 00440, the same as the address of the master station) in parameter addresses 004404 to 004407⁽⁸⁾ (slave station 01) and the offset byte number 8 and "offset valid" on the parameter address 004410 to 004413⁽⁸⁾ (slave station 02). (Example for 9-40)



Screen display of JW-13PG

| | | |
|----------|-----|----|
| 04011 | HEX | 00 |
| 04012 | HEX | 00 |
| I PARAM. | | |
| >04013 | HEX | 80 |

To the next page

From the previous page

Set the number of sending bytes of the master station relay link [DCM (decimal), word]

- Set in parameter addresses 005000 to 005001⁽⁸⁾.

| | |
|-----------------------|-------|
| 005000 ⁽⁸⁾ | Lower |
| 005001 ⁽⁸⁾ | Upper |

- These top addresses should not overlap the register link area, or the flag area, or exceed the setting range (0 to 256 bytes for each station, 256 bytes for all stations in total).

In case of setting 8 bytes: Using JW-13PG example for page 9·41

アドレス (ADRS) [F] 5 [A] 0 [A] 0 [A] 0 [モニタ (MNTR)] →

Display the contents of parameter addresses 005000 to 005001⁽⁸⁾

変換 (CONV) [変換 (CONV)] [SET] 8 [書込 (ENT)] →

Write 00008^(D) after converting to decimal.

Screen display of JW-13PG

| | | |
|----------|---|-------|
| 04774 | D | 00000 |
| 04776 | D | 00000 |
| I PARAM. | | |
| >05000 | D | 00008 |

Set the number of sending bytes of the slave station (01 to 77) relay link [DCM (decimal), word]

- Set the number of sending bytes in decimal on the parameter addresses 005002 to 005177⁽⁸⁾. (set in each station, 2 bytes for each station).

These top addresses should not overlap the register link area, or the flag area, or exceed the setting range (0 to 256 bytes for each station, 256 bytes for all stations in total).

| | | | |
|---------------------------------|-----------------------|-------|--------------------|
| Slave station 01 ⁽⁸⁾ | 005002 ⁽⁸⁾ | Lower | } Enter by decimal |
| | 005003 ⁽⁸⁾ | Upper | |
| to | | | |
| Slave station 77 ⁽⁸⁾ | 005176 ⁽⁸⁾ | Lower | } Enter by decimal |
| | 005177 ⁽⁸⁾ | Upper | |

(In case of setting 4 bytes for slave station 01, and set 8 bytes for slave station 02: Example of page 9·41)

Slave station 01 [STEP (+)] [E] 4 [書込 (ENT)] →

Write 00004^(D) in parameter addresses 005002 to 005003⁽⁸⁾.

Slave station 02 [STEP (+)] [SET] 8 [書込 (ENT)] →

Write 00008^(D) in parameter addresses 005004 to 005005⁽⁸⁾.

Screen display of JW-13PG

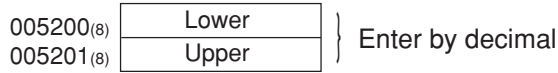
| | | |
|----------|---|-------|
| 05000 | D | 00008 |
| 05002 | D | 00004 |
| I PARAM. | | |
| >05004 | D | 00008 |

To the next page

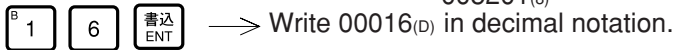
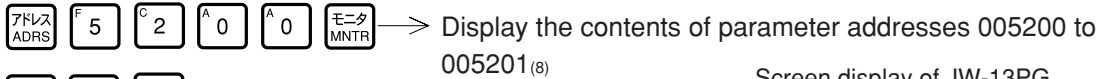
From the previous page

Set the number of sending bytes of the master station register link [DCM (decimal), word]

- Set the number of sending bytes in decimal on the parameter addresses 005200 to 005201⁽⁸⁾.
- These top addresses should not overlap the relay link area or the flag area, or exceed the setting value (0 to 2048 bytes for each station, 2048 bytes for all stations in total).



(In case of setting 16 bytes using JW-13PG: Example of page 9-41)

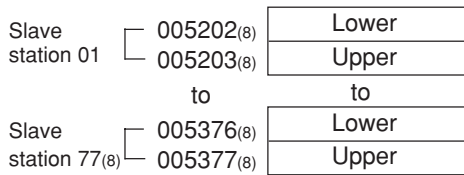


Screen display of JW-13PG

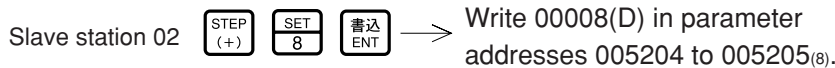
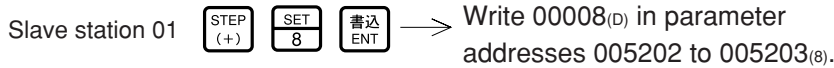
| | | |
|----------|---|-------|
| 05174 | D | 00000 |
| 05176 | D | 00000 |
| I PARAM. | | |
| >05200 | D | 00016 |

Set the number of sending bytes of the slave station (01 to 77⁽⁸⁾) register link [DCM (decimal), word]

- Set the number of sending bytes in decimal on the parameter addresses 005202 to 005377⁽⁸⁾. (set in each station, 2 bytes for each station).
- These top addresses should not overlap the register link area, or the flag area, or exceed the setting range (0 to 2048 bytes for each station, 2048 bytes for all stations in total).



(In case of setting 8 bytes both for slave station 01 and 02: example of page 9-41)



Screen display of JW-13PG

| | | |
|----------|---|-------|
| 05200 | D | 00016 |
| 05202 | D | 00008 |
| I PARAM. | | |
| >05204 | D | 00008 |

To the next page

From the previous page

“When PC is JW model and the SEND/RECEIVE function is used”

Set time-out time of SEND/RECEIVE function [DCM (decimal), byte]

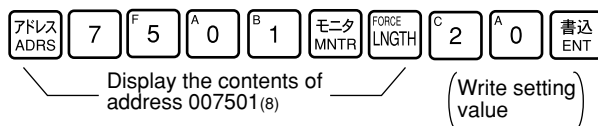
- When the own station uses the SEND/RECEIVE instructions, set the time-out time on each communication target station.
- Setting range is 001 (0.1 sec.) to 255 (25.5 sec.) by decimal. 00_(H) of initial value is 1 second.

| Address (8) | Station No. (8) | Address (8) | Station No. (8) | Address (8) | Station No. (8) | Address (8) | Station No. (8) |
|----------------|--------------------|----------------|--------------------|----------------|--------------------|----------------|--------------------|
| — | — | 007520 | 2 0 | 007540 | 4 0 | 007560 | 6 0 |
| 007501 | 0 1 | 007521 | 2 1 | 007541 | 4 1 | 007561 | 6 1 |
| 007502 | 0 2 | 007522 | 2 2 | 007542 | 4 2 | 007562 | 6 2 |
| 007503 | 0 3 | 007523 | 2 3 | 007543 | 4 3 | 007563 | 6 3 |
| 007504 | 0 4 | 007524 | 2 4 | 007544 | 4 4 | 007564 | 6 4 |
| 007505 | 0 5 | 007525 | 2 5 | 007545 | 4 5 | 007565 | 6 5 |
| 007506 | 0 6 | 007526 | 2 6 | 007546 | 4 6 | 007566 | 6 6 |
| 007507 | 0 7 | 007527 | 2 7 | 007547 | 4 7 | 007567 | 6 7 |
| 007510 | 1 0 | 007530 | 3 0 | 007550 | 4 8 | 007570 | 7 0 |
| 007511 | 1 1 | 007531 | 3 1 | 007551 | 5 1 | 007571 | 7 1 |
| 007512 | 1 2 | 007532 | 3 2 | 007552 | 5 2 | 007572 | 7 2 |
| 007513 | 1 3 | 007533 | 3 3 | 007553 | 5 3 | 007573 | 7 3 |
| 007514 | 1 4 | 007534 | 3 4 | 007654 | 5 4 | 007574 | 7 4 |
| 007515 | 1 5 | 007535 | 3 5 | 007555 | 5 5 | 007575 | 7 5 |
| 007516 | 1 6 | 007536 | 3 6 | 007556 | 5 6 | 007576 | 7 6 |
| 007517 | 1 7 | 007537 | 3 7 | 007557 | 5 7 | 007577 | 7 7 |

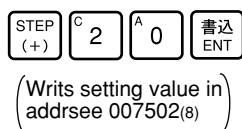
Initial value: 00_(H) in all address (1 second)

(In case of setting 020_(D) (2 sec.) both for slave station 01 and 02 using JW-13PG)

Screen display of JW-13PG



| | | |
|----------|-----|-----|
| 07500 | DCM | 000 |
| 07501 | DCM | 020 |
| I PARAM. | | |
| >07502 | DCM | 020 |



To the next page

From the previous page

“When PC is JW model and the SEND/RECEIVE function is used”

Set PC model of each station [HEX (hexadecimal), byte]

- Assign model type of the communication target station from ZW and JW PCs, ZW-20CM with JW applied or not, or JW-22CM (JW20/JW20H, JW30H)

| Communication module of target station | PC of target station | |
|--|----------------------|----------|
| | ZW model | JW model |
| ZW-20CM (without JW applied sign) | 00, 80 | 00, 80 |
| ZW-20CM (with JW applied sign) | 81 | 91 |
| JW-20CM | 81 | 91 |
| JW-22CM | 91 | |

Set values_(H)

| Address (8) | Station number (8) | Address (8) | Station number (8) | Address (8) | Station number (8) | Address (8) | Station number (8) |
|-------------|--------------------|-------------|--------------------|-------------|--------------------|-------------|--------------------|
| — | — | 007620 | 2 0 | 007640 | 4 0 | 007660 | 6 0 |
| 007601 | 0 1 | 007621 | 2 1 | 007641 | 4 1 | 007661 | 6 1 |
| 007602 | 0 2 | 007622 | 2 2 | 007642 | 4 2 | 007662 | 6 2 |
| 007603 | 0 3 | 007623 | 2 3 | 007643 | 4 3 | 007663 | 6 3 |
| 007604 | 0 4 | 007624 | 2 4 | 007644 | 4 4 | 007664 | 6 4 |
| 007605 | 0 5 | 007625 | 2 5 | 007645 | 4 5 | 007665 | 6 5 |
| 007606 | 0 6 | 007626 | 2 6 | 007646 | 4 6 | 007666 | 6 6 |
| 007607 | 0 7 | 007627 | 2 7 | 007647 | 4 7 | 007667 | 6 7 |
| 007610 | 1 0 | 007630 | 3 0 | 007650 | 4 8 | 007670 | 7 0 |
| 007611 | 1 1 | 007631 | 3 1 | 007651 | 5 1 | 007671 | 7 1 |
| 007612 | 1 2 | 007632 | 3 2 | 007652 | 5 2 | 007672 | 7 2 |
| 007613 | 1 3 | 007633 | 3 3 | 007653 | 5 3 | 007673 | 7 3 |
| 007614 | 1 4 | 007634 | 3 4 | 007654 | 5 4 | 007674 | 7 4 |
| 007615 | 1 5 | 007635 | 3 5 | 007655 | 5 5 | 007675 | 7 5 |
| 007616 | 1 6 | 007636 | 3 6 | 007656 | 5 6 | 007676 | 7 6 |
| 007617 | 1 7 | 007637 | 3 7 | 007657 | 5 7 | 007677 | 7 7 |

1. Initial value: 91_(H) all address.
2. Entering both 00_(H) and 88_(H) will produce the identical result. The SEND communication instruction (writing data) is not available with this setting.
3. You cannot program SEND/RECEIVE instructions in a ZW model PC. However, the ZW model PC will respond to SEND/RECEIVE instructions from a JW model PC.

Ex.: When you want to enter 91_(H) at both the slave station 01 and 02 (if the PC a JW model and the I/O is a ZW-20CM with a sticker indicating that it can be used with the JW model or JW-20CM).



Display the contents of address 007601₍₈₎

After converting to hexadecimal, write the setting value.

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 07600 | HEX | 00 |
| 07601 | HEX | 91 |
| I PARAM. | | |
| >07602 | HEX | 91 |



(Write setting value in address 007602₍₈₎)

To the next page

From the previous page

“When PC is JW model and the SEND/RECEIVE function is used”

Select system in each channel in SEND/RECEIVE function

- Select the method of each channel (instruction or data memory starting) on the parameter address 007700 to 007703₍₈₎.

| | |
|-----------------------|------|
| 007700 ₍₈₎ | CH 0 |
| 007701 ₍₈₎ | CH 1 |
| 007702 ₍₈₎ | CH 2 |
| 007703 ₍₈₎ | CH 3 |

1. When using 1 channel alone

| Channel | Setting value (H) | System |
|---------|-------------------|-----------------------------|
| CH 0 | 0 0 | Instruction system |
| | 8 0 | Data memory starting system |
| CH 1 | 0 0 | Instruction system |
| | 8 1 | Data memory starting system |
| CH 2 | 0 0 | Instruction system |
| | 8 2 | Data memory starting system |
| CH 3 | 0 0 | Instruction system |
| | 8 3 | Data memory starting system |

2. When using connected channels

In the SEND/RECEIVE function, the JW-20CM can send and receive a maximum of 256 bytes of data for each channel. For the data memory starting system, the amount of communication data can be increased by connecting channels.

Set the data amount with 8X_(H) (X is 0 to 3, determined depending on which channel is used for the connector.)

When using connected channels, these should be consecutive channels. For example, channel 0 and 1, or channel 2 and 3 can be connected to each other, but channel 1 and 3 can not be connected to each other.

[Example 1] When all channels are used for the data memory starting system (using 1 channel alone)

| | | |
|------|-----------------------|---------|
| CH 0 | 007700 ₍₈₎ | 8 0 (H) |
| CH 1 | 007701 ₍₈₎ | 8 1 (H) |
| CH 2 | 007702 ₍₈₎ | 8 2 (H) |
| CH 3 | 007703 ₍₈₎ | 8 3 (H) |

[Example 2] When channel 0 is used for the instruction system, and channel 1 to 3 are the data memory starting system and used connected.

(In this case, channel 2 and 3 can not be used.)

| | | |
|------|-----------------------|---------|
| CH 0 | 007700 ₍₈₎ | 8 0 (H) |
| CH 1 | 007701 ₍₈₎ | 8 1 (H) |
| CH 2 | 007702 ₍₈₎ | 8 1 (H) |
| CH 3 | 007703 ₍₈₎ | 8 1 (H) |

If you enter values other than “00_(H), 81_(H) to 83_(H)” the JW-20CM ignores the entry.

To the next page

From the previous page

“When PC is JW model and the SEND/RECEIVE function is used”

V5

Set top address in communication information storage area when using data memory starting system of SEND/RECEIVE functions

Set address of communication information storage area in parameter addresses 007710 to 007713₍₈₎.

| | | |
|-----------------------|---|--|
| 007710 ₍₈₎ | Lower | Top address of communication information storage area (file address) |
| 007711 ₍₈₎ | Upper | |
| 007712 ₍₈₎ | File number of communication information storage area | |
| 007713 ₍₈₎ | This setting is valid by 80 _(H) | |

Set connection status of slave station [bit pattern, byte]

• In the initial settings of the data link function, the JW-20CM will not display errors (on the LEDs on the panel, or in the system memory) even if it detects a communication error in a slave station. In order to display the error when a slave station communication error is detected, set bit 0(E) at parameter address 007750₍₈₎ to ON. Each bit at addresses 00751 to 007757₍₈₎ corresponds to a slave station. Turn ON the respective bit if required. (See page 13·15.)

With the setting above, the JW-20CM will display errors when a slave station whose corresponding bit is ON produces a communication error.

Ex.: Setting the bits to output errors for slave stations 01 and 02 using the JW-13PG.

| | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|
| 007750 ₍₈₎ | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |

アドレス ADRS 7 7 5 0 モニタ MNTR →

変換 CONV 変換 CONV 変換 CONV B 1 →

B 1 B 1 書込 ENT →

Screen display of JW-13PG

| | | | | | | | | |
|----------|---|---|---|---|---|---|---|---|
| 07746 | □ | □ | □ | □ | □ | □ | □ | □ |
| 07747 | □ | □ | □ | □ | □ | □ | □ | □ |
| I PARAM. | □ | □ | □ | □ | □ | □ | □ | □ |
| >07750 | □ | □ | □ | □ | □ | □ | □ | ■ |

• If a bit corresponding to a slave station is turned OFF, the module will not display an error code for a slave station which has an error.

V5

Set whether the station number information should be output or not

• Set whether the station number information should be output or not on the parameter address 007763₍₈₎.

| | | |
|-----------------------|--|-----------------------------------|
| 007763 ₍₈₎ | Whether the station number information should be output or not | 00 _(H) : Do not output |
| | | 01 _(H) : Output |

The station number information is output on the next byte of the flag area (24 bytes.)

To the next page

From the previous page

Set top address of flag area

File address: OCT (octal), word
File number/flag: HEX (hexadecimal), byte

- Set the top address of the flag area (24 bytes) in order to monitor the communication condition and PC operation condition on the parameter address 007764 to 007767₍₈₎.
- Flag area uses 24 bytes regardless number of connecting stations.

| | Initial value | Contents | |
|-----------------------|---------------|-------------------|--|
| 007764 ₍₈₎ | Lower | E0 _(H) | } 01E0 _(H) → 000740 ₍₈₎ → 0740 |
| 007765 ₍₈₎ | Upper | 01 _(H) | |
| 007766 ₍₈₎ | File number | 00 _(H) | — File number 0 |
| 007767 ₍₈₎ | D7 | 80 _(H) | — Output flag |

Output flag : ON
Do not output flag : OFF

- In case of setting “0740, output flag” using JW-13PG.



Write “740(0740)” in parameter addresses 007764 to 007765₍₈₎.



After switching to byte display, write file No. 0 with HEX (hexadecimal)



Write 80_(H) to address 007767₍₈₎

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 07765 | HEX | 01 |
| 07766 | HEX | 00 |
| I PARAM. | | |
| >07767 | HEX | 80 |

Enter communication error detection interval

[DCM (decimal), byte]

- If the JW-20CM does not receive data from a station within the specified time (initial value: 250 ms when fewer than 32 stations are connected, 450 ms when more than 33 stations are connected), it turns OFF the communication monitor flag corresponding to this station. The specified time can be changed by entering a different value at parameter address 007771₍₈₎ (communication error detection time). Use the same value for all the stations. Normally, this value does not need to be changed. Use the modules with the initial value (00_(H)).

| Set value _(D) | Communication error detection time (ms) ※ |
|--------------------------|---|
| 000 | Initial value: 250 ms for fewer than 32 stations, 450 ms for more than 33 stations. |
| 001 | 100 |
| : | : |
| 010 | 1000 |
| : | : |
| 255 | 2500 |

※ Detection time precision : —100 ms to +0 ms

Ex.: If the PC scan time is extremely long (exceeds the time specified above), the communication monitor flag will turn OFF, even though there is no communication error. In this case, change the value at parameter address 007771₍₈₎ to a larger number.

To the next page

From the previous page

Writing to the EEPROM of the JW-22CM, start operation [HEX (hexadecimal), byte]

- Write "81_(H)" into parameter address 007777₍₈₎ and write the set parameter contents into the EEPROM of the JW-20CM.
- Then start the JW-20CM. After starting operation, the setting value changes to "01_(H)."

| Setting value _(H) | Contents |
|------------------------------|---|
| 0 0 | Stop operation of the JW-20CM |
| 0 1 | Start operation of the JW-20CM |
| 8 0 | Writing to the EEPROM of the JW-20CM, stop operation |
| 8 1 | Writing to the EEPROM of the JW-20CM, start operation |
| 0 8 | Initialize parameters |

(Operation example of JW-13PG)

アドレス ADRS 7 7 7 7 モニタ MNTR SET 8 B 1 書込 ENT
 \ Display the contents of address 007777₍₈₎ \ Write 81_(H) \

Screen display of JW-13PG

| | | |
|----------|-----|----|
| 07765 | HEX | 01 |
| 07766 | HEX | 00 |
| I PARAM. | | |
| >07767 | HEX | 80 |

Remarks

- Writing time to EEPROM is approximately 0.7 sec. When any error is found for parameter settings, the JW-20CM lights the error code (6F_(H)) by the indication lamp. To recover from this condition.
 - Treatment when error code 6F_(H) appears and COMM is turned OFF.
 - ① Check number of top addresses/bytes of master station "relay link" and "register link."
 - ② Check the set value for number of connected stations.
 - ③ Check the set value for master station flag top address.
 - ④ Check whether the function is set to "relay register link."
- Written contents into the EEPROM are automatically written to the RAM of the JW-22CM when turning ON the power of the PC. At reading, the PC checks BCC and compares BCC check code of the parameter memory address (007776₍₈₎). When an error is found, the JW-20CM lights the error code (6E_(H)) by the indication lamp.
- If "parameter initialization" is selected, the module initializes parameter addresses 004000 to 007776₍₈₎.

PC operation

Turning a master module to monitor or change mode (PC operation).

(Operation example of JW-13PG)

* * MNTR MODE SET 8 → Monitor mode
* * CHNG MODE SET 8 → Change mode

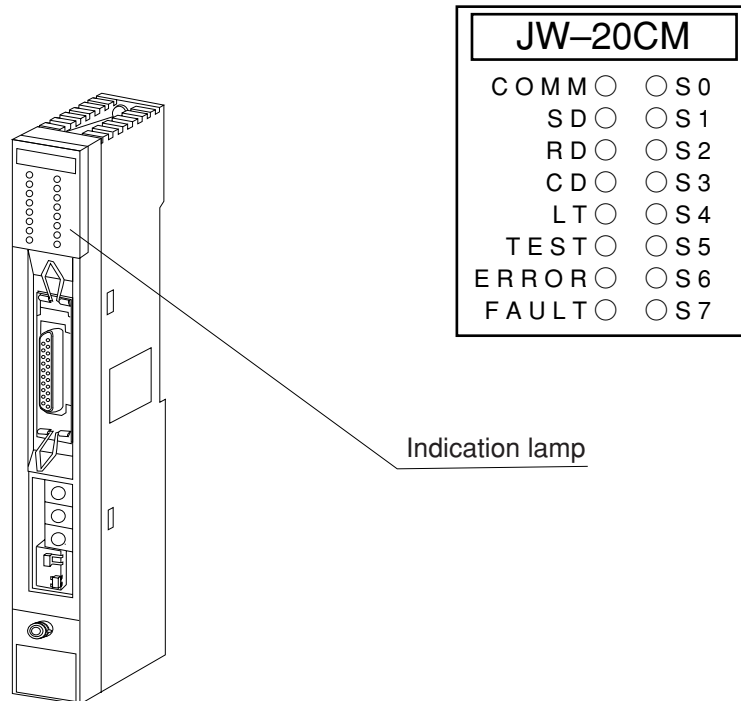
Screen display of JW-13PG

| |
|--------|
| C00000 |
| > |

9-8 Error and treatment

Operation status of the JW-20CM can be check by indication lamps, flags, or system memory.

(1) Indication lamp



| Name | Operation | Recovery |
|----------|--|--|
| COMM | Lights while the remote I/O is operating | _____ |
| SD | Flickers while sending data | _____ |
| RD | Flickers while receiving data | _____ |
| CD | Flickers while detecting a carrier | _____ |
| LT | Lights when the termination resistance switches turned ON | _____ |
| TEST | Lights while testing | _____ |
| ERROR | Lights while an error is detected (Indicate error code by S0 to S7 LEDs) | <ul style="list-style-type: none"> · Check disconnection of communication cable · Check settings of switches · Check settings of parameter · Check power supply voltage. |
| FAULT | Lights when the watchdog timer is time up (JW-20CM is faulty) | Replace the JW-20CM |
| S0 to S7 | Indicates error codes by hexadecimal when an error is occurred | See the next page |

(Error code)

● : ON, ○ : OFF

| LED name | | | | | | | | Error code (HEX) | Cause | Measure |
|----------|----|----|----|---|---|---|---|--------------------|--|--|
| 80 | 40 | 20 | 10 | 8 | 4 | 2 | 1 | | | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | 01 _(H) | ROM error, upper CPU | Replace the JW-20CM |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | 02 _(H) | RAM error, upper CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ● | 03 _(H) | 2 port RAM error against PC, upper CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 04 _(H) | 2 port RAM error against communication CPU, upper CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 11 _(H) | ROM error, communication CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 12 _(H) | RAM error, communication CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 18 _(H) | Communication LSI error, communication CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 1F _(H) | No response, communication CPU | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 20 _(H) | More than one token detected | Check the parameter setting, switch |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 21 _(H) | Doubled address detected | Replace the JW-20CM |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 22 _(H) | Fault of sending section | Check the communication cable |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 23 _(H) | Token does not return within the rated interval | Check the communication cable |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2A _(H) | Over flow of receiving buffer. Occurs when the upper CPU processing is delayed. | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2B _(H) | Flame length error | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 2C _(H) | Media error | • Occurs because of a media execution error or noise from outside. |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | 30 _(H) | EEPROM error | Check the communication cable Replace the JW-20CM |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | BE _(H) | BCC error | Check the parameter contents |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | BF _(H) | Parameter setting error | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | *C1 _(H) | Communication error | Check the communication cable and slave module |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | to | • After converting into octal, the lower two digits represent the slave station number of the current error. (Ex. C1 _(H) = 301 ₍₈₎ = slave station 01) | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | *FF _(H) | | |

※ You need to select the "output error code for a slave station connection condition" at the master station parameter addresses 007750 to 007757₍₈₎. If more than one slave station has an error, the slave station with the lowest station number will be displayed.

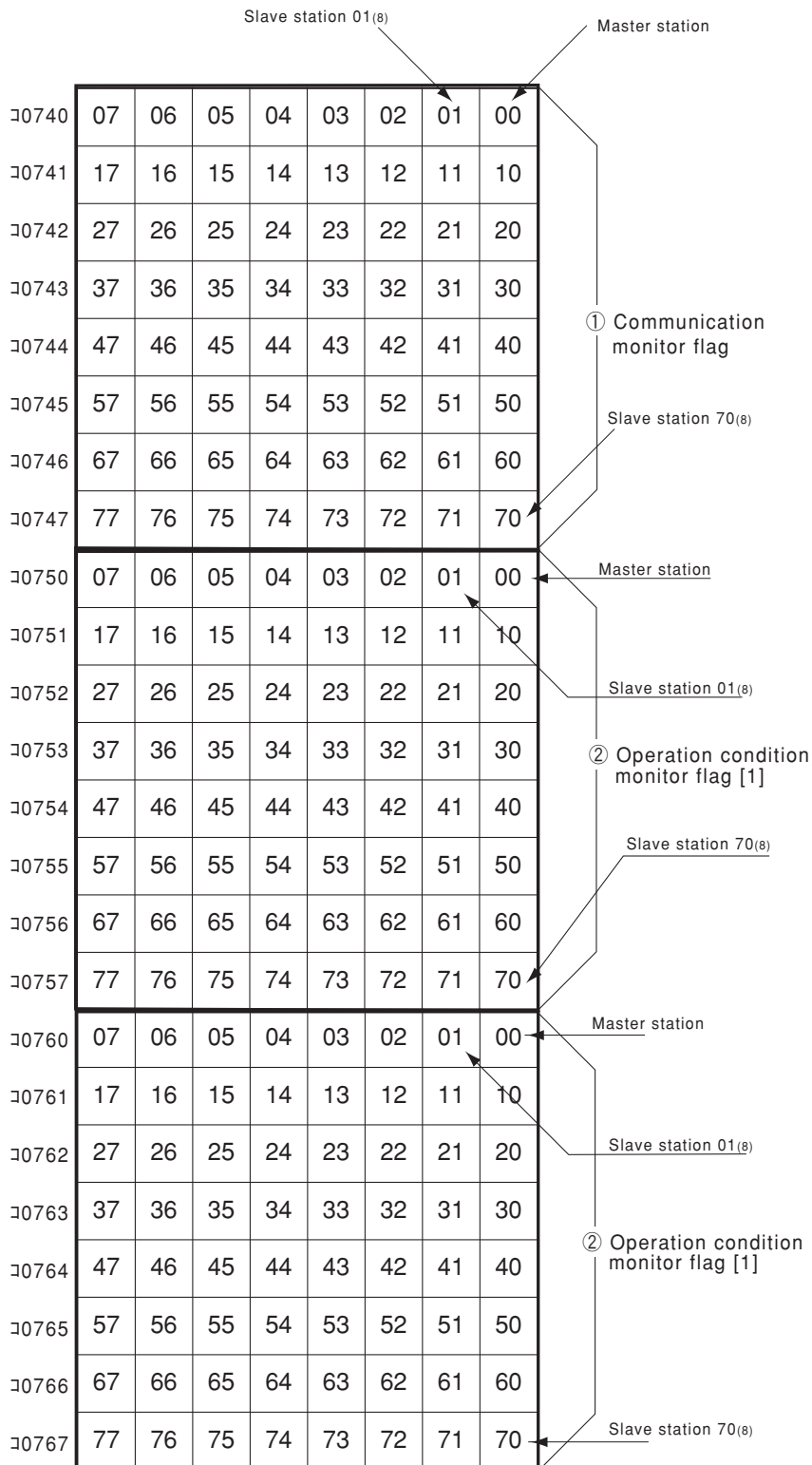
Remarks

- Error codes "23" and "2A_(H)" may occur when applying power. This is not an error.
- To check the communication cable, remove both connectors and short the connector terminals at one end. Then measure the conductivity using a tester.
- Check the parameter and switch settings for all stations. If the settings are correct, replace the JW-20CM or JW-20RS.

(2) Flag

Flag area is 24 bytes from the “flag top address” set in the master station/slave station parameters.

① **Flag table** [In case of flag top address is 10740 (initial value)]



Remarks

• Even a slave station can monitor 24 bytes of flag.

② In the case of a master station (PC 00)

· **Communication monitor flag**

This flag is used to monitor the communication condition with other stations. Non-connected station keeps this flag as “OFF.”

| Flag | Condition for flag operation | Flag operation |
|-----------------------------------|---|----------------|
| Own station flag (master station) | When the link start switch is set to “01(H),” and the master station is operating normally. | ON |
| | When the link start switch is set to “00(H).” | OFF |
| | Improper setting of parameter, BCC check error, or other errors. | |

| Flag | Condition for flag operation | Flag operation | |
|---------------------------------|---|----------------|------------------------|
| Other station's flag (01 to 77) | Normal communication with slave stations. | ON | Specific slave station |
| | Stopped communication or unable to communicate with slave stations. | OFF | |
| | Communication monitor flag (1) of the master station is turned “OFF.” | | All slave stations |

The master station periodically executes communication recovery operation with the communication error slave station. When the error situation is recovered, the master station returns to normal communication.

· **Operation condition monitor flag [1]**

This flag is used to monitor the operation condition of slave stations when the communication with each slave station is normal.

Non-connected station keeps this flag as “OFF.”

| Flag | Condition for flag operation | Flag operation |
|-----------------------------------|---|----------------|
| Own station flag (master station) | Communication monitor flag (1) of the master station is turned “ON.” | ※ON |
| | Communication monitor flag (1) of the master station is turned “OFF.” | OFF |

| Flag | Condition for flag operation | Flag operation | |
|---------------------------------|---|----------------|------------------------|
| Other station's flag (01 to 77) | Slave station is operating. | ON | Specific slave station |
| | Slave station stops operation (not by an error cause). | OFF | |
| | Communication monitor flag (1) of the master station is turned “OFF.” | | All slave stations |
| | Slave station that communication monitor flag (1) is turned to “OFF.” | Not specified | |

※ Even if a master station PC has stopped operation normally or by an error, the JW-20CM turns “ON” this flag while communicating.

· **Operation condition monitor flag [2]**

This flag is used to monitor the abnormal stop of each slave station when the communication with each slave station is normal.

Non-connected station keeps this flag as "OFF."

| Flag | Condition for flag operation | Flag operation |
|-----------------------------------|---|----------------|
| Own station flag (master station) | Communication monitor flag (1) of the master station is turned "ON." | ※ON |
| | Communication monitor flag (1) of the master station is turned "OFF." | OFF |

| Flag | Condition for flag operation | Flag operation | |
|---------------------------------|--|----------------|------------------------|
| Other station's flag (01 to 77) | Each slave station is normal. | ON | Specific slave station |
| | Any of the slave stations is faulty (caused to be stopped abnormally). | OFF | |
| | Communication monitor flag (1) of the master station is turned "OFF." | | All slave stations |
| | Slave station that communication monitor flag (1) is turned to "OFF." | Not specified | |

※ Even if a master station PC has stopped operation normally or by an error, the JW-20CM turns "ON" this flag while communicating.

③ In the case of slave station (PC 01 to 77₍₈₎)

· **Communication monitor flag**

This flag is used to monitor the communication condition with other stations. Non-connected station keeps this flag as “OFF.”

| Flag | Condition for flag operation | Flag operation |
|------------------|---|----------------|
| Own station flag | When the link start switch is set to “01 _(H) ,” and at communicating with a master station normally. | ON |
| | When the link start switch is set to “00 _(H) .” | OFF |
| | When link start switch “00 _(H) ” of the master station is OFF. | |

| Flag | Condition for flag operation | Flag operation | |
|----------------------|---|----------------|------------------|
| Other station's flag | Normal communication with each station. | ON | Specific station |
| | Stopped communication or unable to communication with each station. | OFF | |
| | Communication monitor flag (1) of the master station is turned “OFF.” | | All stations |

· **Operation condition monitor flag [1]**

This flag is used to monitor the operation condition of each station when the communication with each station is normal.

Non-connected station keeps this flag as “OFF.”

| Flag | Condition for flag operation | Flag operation |
|------------------|--|----------------|
| Own station flag | Communication monitor flag (1) of the own station is turned “ON.” | ※ON |
| | Communication monitor flag (1) of the own station is turned “OFF.” | OFF |

| Flag | Condition for flag operation | Flag operation | |
|----------------------|---|----------------|--------------------|
| Other station's flag | Each station is operating. | ON | Specific station |
| | Each station stops operation (not by an error cause). | OFF | |
| | Communication monitor flag (1) of the own station is turned “OFF.” | | All slave stations |
| | Slave station that communication monitor flag (1) is turned to “OFF.” | Not specified | |

※ Even if the own station PC has stopped operation normally or by an error, the JW-20CM turns “ON” this flag while communicating.

· **Operation condition monitor flag [2]**

This flag is used to monitor the abnormal stop of each station when the communication with each station is normal.

Non-connected station keeps this flag as “OFF.”

| Flag | Condition for flag operation | Flag operation |
|------------------|--|----------------|
| Own station flag | Communication monitor flag (1) of the own station is turned “ON.” | ※ON |
| | Communication monitor flag (1) of the own station is turned “OFF.” | OFF |

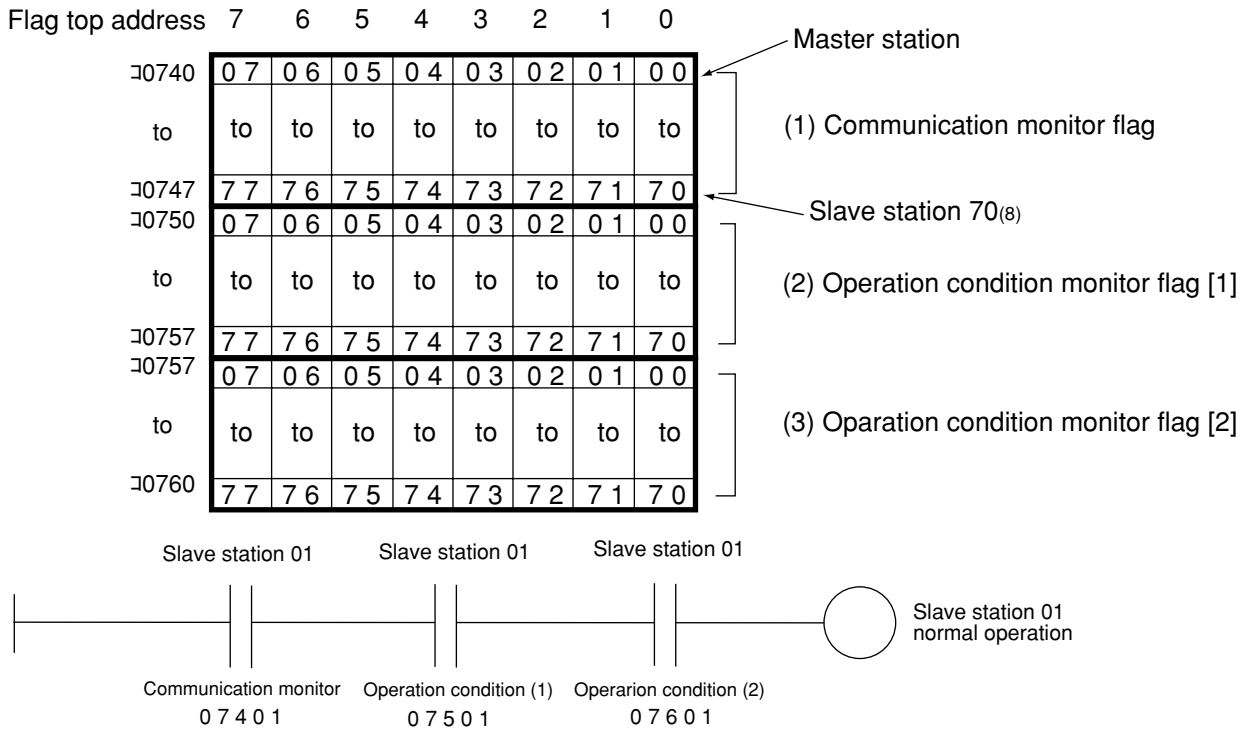
| Flag | Condition for flag operation | Flag operation | |
|----------------------|---|----------------|------------------|
| Other station's flag | Each station is normal. | ON | Specific station |
| | Any of the stations is faulty (caused to be stopped abnormally). | OFF | |
| | Communication monitor flag (1) of the own station is turned “OFF.” | | All stations |
| | Slave station that communication monitor flag (1) is turned to “OFF.” | Not specified | |

※ Even if a own station PC has stopped operation normally or by an error, the JW-20CM turns “ON” this flag while communicating.

④ **Monitor operation condition by each station PC**

By creating a program having the flags shown below in each station's PC, the JW-20CM can monitor the operation condition of each station's PC.

[Ex.: In this case the flag top address is 10740]



(3) Error code

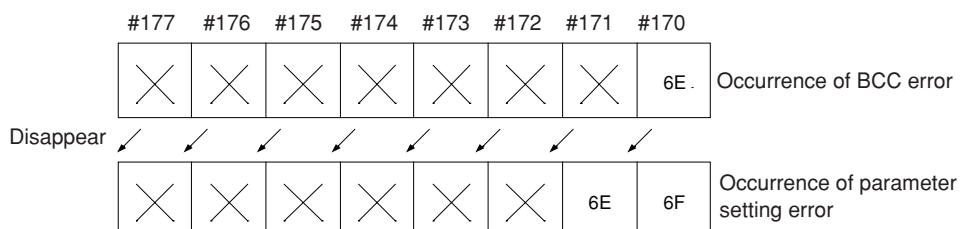
When an error occurs in the JW-20CM, it stores the occurred error's code to system memory #170 of each station's PC.

| Error code (HEX) | Cause | Error code stored to system memory ^(H) | | Measure |
|------------------|---|---|-------------|---|
| | | #160 | #170 to 177 | |
| 01 | ROM error, upper CPU | 53 | — | Replace the JW-20CM • Check the communication cable • Check for doubled allocation of slave station number • Replace the JW-20CM |
| 02 | RAM error, upper CPU | | | |
| 03 | 2 port RAM error against PC, upper CPU | | | |
| 04 | 2 port RAM error against communication CPU, upper CPU | | | |
| 11 | ROM error, communication CPU | | | |
| 12 | RAM error, communication CPU | | | |
| 18 | Communication LSI error, communication CPU | | | |
| 1F | No response | — | 1F | Check the parameter setting |
| 20 | More than one token detected | — | 20 | |
| 21 | Doubled address detected | — | 21 | Replace the JW-20CM |
| 22 | Fault of sending section | — | 22 | |
| 23 | Token does not return within the rated interval | — | 23 | Check the communication cable |
| 2A | Over flow of receiving buffer. | — | 2A | |
| 2B | Flame length error of receiving | — | 2B | |
| 2C | Media error | — | 2C | Replace the JW-20CM |
| 30 | EEPROM error | — | 30 | |
| 6E | BCC error | — | 6E | Check the parameter setting |
| 6F | Parameter setting error | — | 6F | |
| C1 to FF | Communication error • After converting into octal, the lower two digits represent the slave station number of the current error. (Ex. C1 ^(H) = 301 ^(O) = slave station 01) | — | C1 to FF | Check the communication cable and slave module |

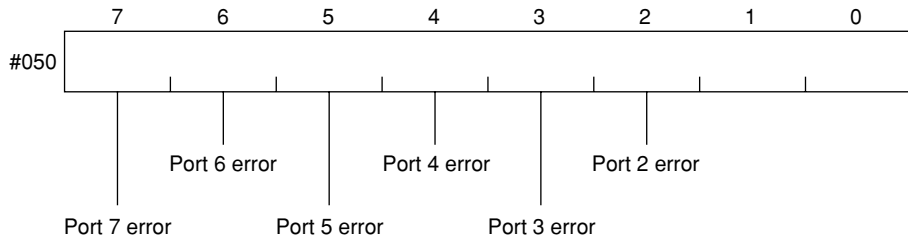
· In some cases, error code 23^(H) or 2A^(H) is stored when inputting power. This is not an error.

Remarks

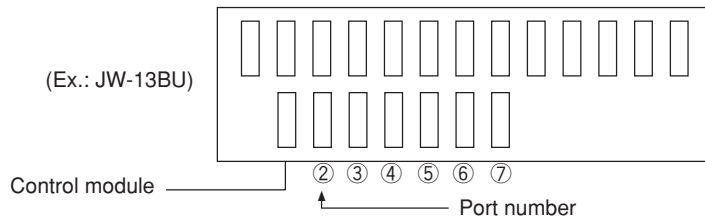
- The error code stored in the system memory #170 is shifted to #170 to #177 one after the other as new errors occur. Thus, the system memory can store up to 8 errors. When the PC is operating by RAM, these error codes do not disappear even after turning OFF the power. The contents of system memory #170 to #177 are kept storing after the JW-20CM recovers from the error.



- When any of errors "01_(H)" to "18_(H)" occurs among the error codes listed on the previous page, the JW-20CM stores error code "53_(H)" (optional error) in the system memory #160. It does not store any error code in system memory #170.
- In the case of an option error "53," when you monitor system memory #050, the bit of error option module switches ON. When more than 1 bit is error, these bits switch ON. The each ON bit becomes OFF by recovering from the error condition. But the last ON bit does not become OFF even if the error condition recovers.

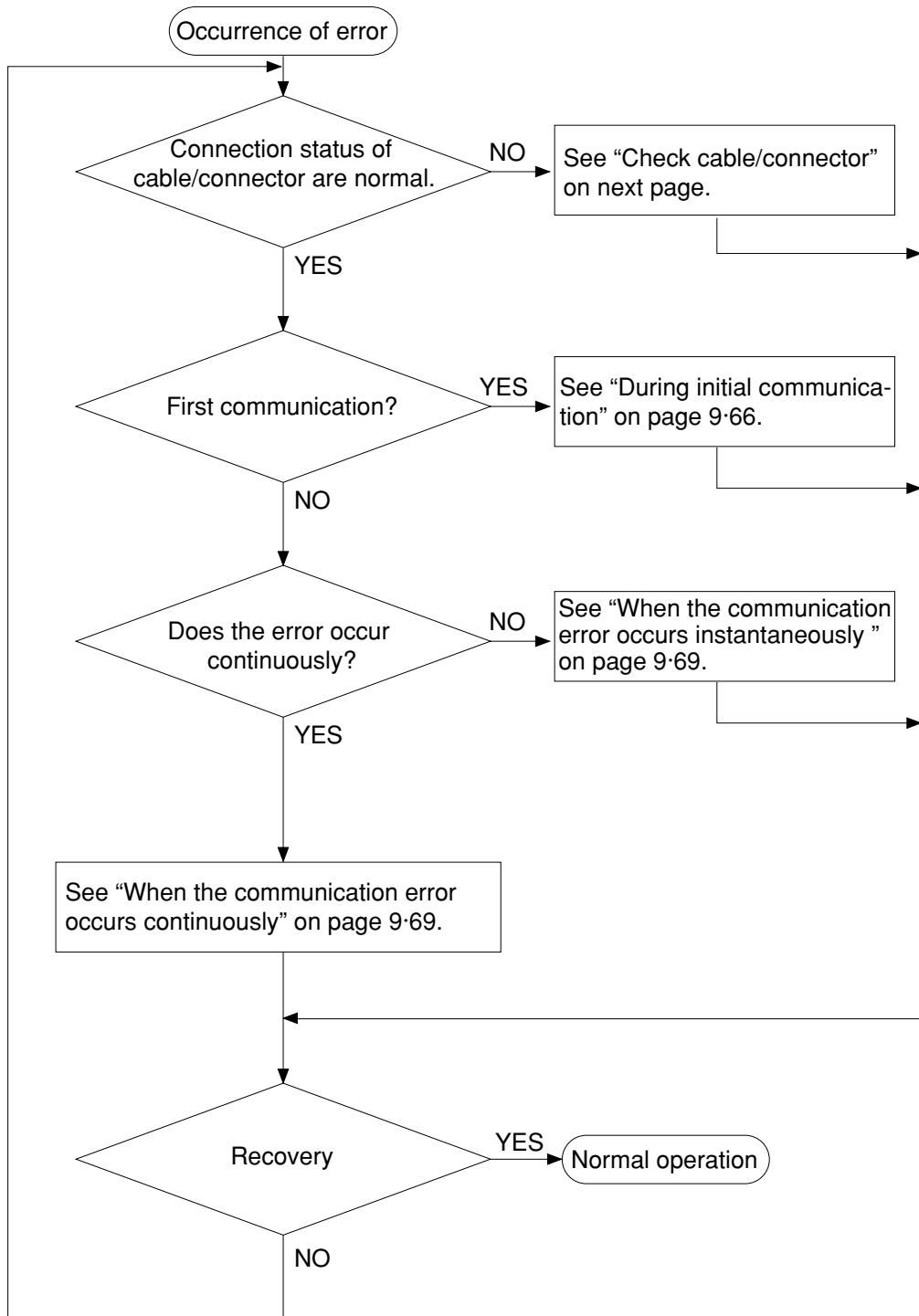


- The option slot port numbers are assigned in the order 2, 3, 4, 5, 6, 7, and so on, starting from the position closet to the control module.



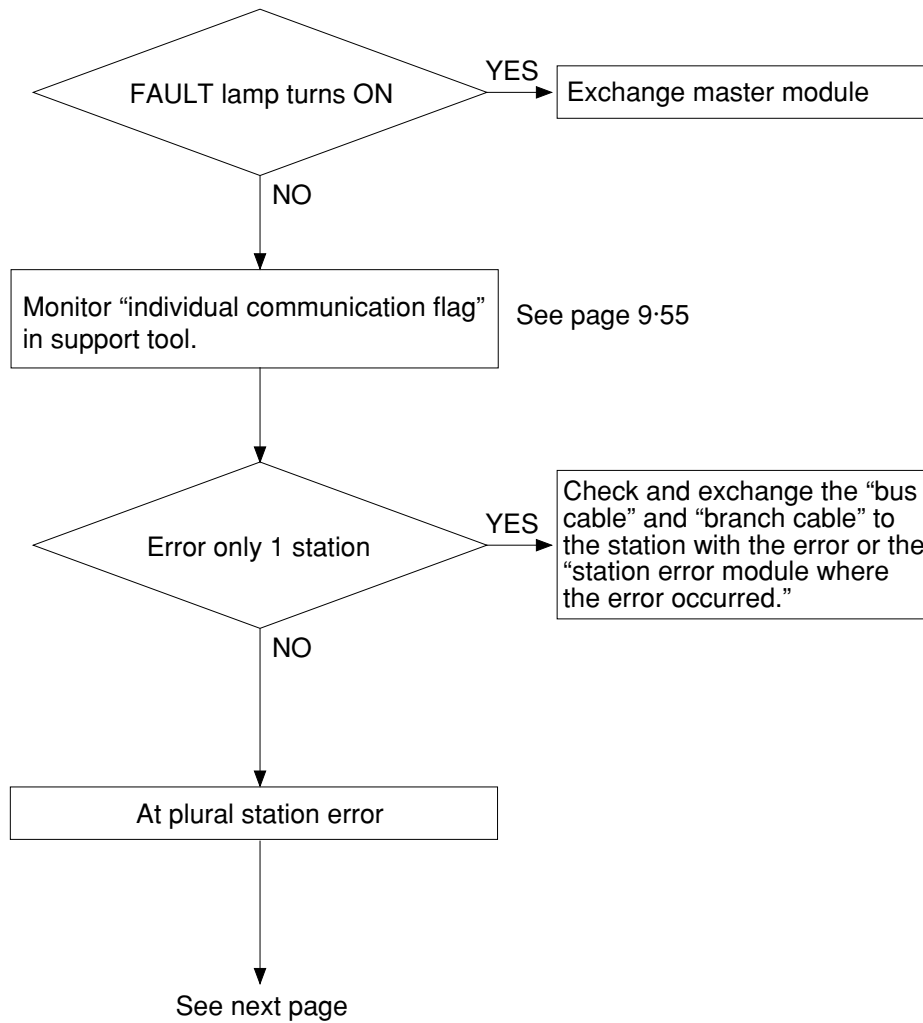
(4) Recovery method at communication errors

① Check flow chart

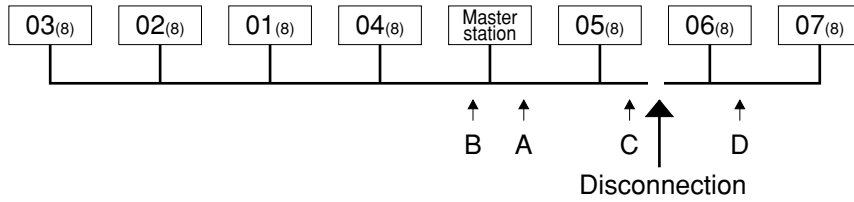


② **Check cable/connector**

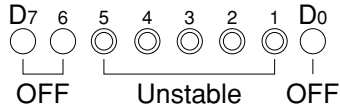
As errors on the junction from the main cable to the drop cable or the contact failure on the connecting point of each station or errors of the master module are assumed, check with the following procedure.



- If the bus cable between the slave station 05₍₈₎ and 06₍₈₎ is disconnected in the following system.

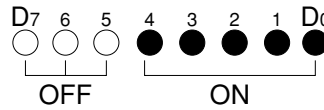


State of an individual communication flag



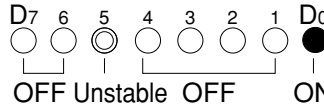
Remove the connector on point A, and turn ON the termination resistance of the master station.

As the communication possible stations 03₍₈₎, 02₍₈₎, 01₍₈₎, and 04₍₈₎ are normal, the state of communication monitoring flag is as follows.



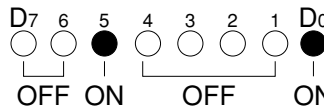
Connect the A connector, and then remove the connector on point B.

As the one side of the termination resistance is lost, all of the communication possible stations 05₍₈₎, 06₍₈₎, and 07₍₈₎ are abnormal, and the station 05₍₈₎ is unstable.



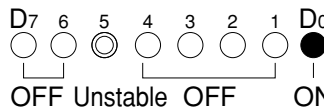
Remove the connector on point C and make sure the B connector is not connected. Turn ON the termination resistance of the slave module 05₍₈₎.

As the communication possible station 05₍₈₎ is normal, abnormal points exists ahead of the point C.



Connect the C connector and make sure the B connector is not connected, and remove the connector at the next point to the point D. Turn OFF the termination resistance of the slave station 05₍₈₎, and turn ON the termination resistance of the end station 06₍₈₎.

As the one side of the termination resistance is lost, the station 05₍₈₎ and 06₍₈₎ become communication possible stations, but the station 05₍₈₎ is unstable and the station 06₍₈₎ is turned to OFF, so the abnormal states occur between the point C and the point D.



| Cause | Countermeasure |
|--|---|
| Disconnection in the bus cable and the branch cable between the station 05 ₍₈₎ and 06 ₍₈₎ , or contact failure of the connectors | Remove both the bus cable and the branch cable connectors. After that, shorten one of these connectors and check conductivity using a tester. |
| Error on the slave station 06 ₍₈₎ | Exchange the slave module. |

③ During initial communication (start-up of the system)

Lighting error code 6F_(H)

- When the master station indicates error code 6F_(H) and the COMM lamp is OFF.
The cause may be a parameter setting error of the master station. Check the master station parameters below.

| Parameter address ₍₈₎ | Contents | Setting range |
|----------------------------------|---|--|
| 004000 to 004001 | Relay link top address of master station | ∟0000 to 39777 ₍₈₎ (File 0 : 000000 to 007777 ₍₈₎) |
| 004003 ₍₈₎ | Amount of connectable stations | 2 to 64 _(D) |
| 004400 to 004403 | Register link top address of master station | ∟0000 to 99777 ₍₈₎ (File 0 : 000000 to 015777 ₍₈₎) 000000 to 177777 ₍₈₎ (File 1 to 7) |
| 005000 to 005177 ₍₈₎ | Relay link sending bytes of each station | 0 to 256 _(D) Total : 256 max. |
| 005200 to 005377 | Register link sending bytes of each station | 0 to 2048 _(D) Total : 2048 max. |
| 007764 to 007767 | Flag top address | ∟0000 to 99777 ₍₈₎ (File 0 : 000000 to 015777 ₍₈₎) 000000 to 177777 ₍₈₎ (File 1 to 7) |

- When the master station indicates error code 6F_(H) and the COMM lamp lights.
The cause may be a setting error of any of the slave stations which are set in the parameter. Check the following master station parameters.

| Parameter address ₍₈₎ | Contents | Setting range |
|----------------------------------|--|--|
| 004004 to 004377 | Relay link top address of slave station | ∟0000 to 39777 ₍₈₎ (File 0 : 000000 to 007777 ₍₈₎) |
| | Relay link offset bytes of slave station | 00000 to 00256 _(D) |
| 004404 to 004777 | Register link top address of slave station | ∟0000 to 99777 ₍₈₎ (File 0 : 000000 to 015777 ₍₈₎) 000000 to 177777 ₍₈₎ (File 1 to 7) |
| | Register link offset bytes of slave station | 00000 to 02048 _(D) |
| 005000 to 005177 | Relay link top address sending bytes of each station | 0 to 256 _(D) Total : 256 max. |
| 005200 to 005377 | Register link sending bytes of each station | 0 to 2048 _(D) Total : 2048 max. |
| 007764 to 007767 | Flag top address | ∟0000 to 99777 ₍₈₎ (File 0 : 000000 to 015777 ₍₈₎) 000000 to 177777 ₍₈₎ (File 1 to 7) |

When slave station is JW-22CM, see “JW-22CM users manual” for setting range.

- When the master station is normal and the error code 6F_(H) of a slave station lights.
The cause may be a faulty setting of the slave station parameter. Check the following slave station parameters.

| Parameter address ₍₈₎ | Contents | Setting range |
|----------------------------------|--|--|
| 007720, 007721 | Relay link receiving bytes of slave station | 0 to 256 _(D) Total : 256 max. In case of "0", same as number of sending bytes |
| 007722, 007723 | Register link receiving bytes of slave station | 0 to 2048 _(D) Total : 256 max. In case of "0", same as number of sending bytes |
| 007730 to 007733 | Relay link top address of slave station | ∓0000 to 39777 ₍₈₎ (File 0 : 000000 to 007777 ₍₈₎) |
| 007734 to 007737 | Register link top address of slave station | ∓0000 to 99777 ₍₈₎ (File 0 : 000000 to 015777 ₍₈₎) 000000 to 177777 ₍₈₎ (File 1 to 7) |
| 007764 to 007767 | Flag top address | ∓0000 to 99777 ₍₈₎ (File 0 : 000000 to 015777 ₍₈₎) 000000 to 177777 ₍₈₎ (File 1 to 7) |

※ In case of using memory capacity save function

When slave station is JW-22CM, see "JW-22CM users manual" for setting range.

When the COMM lamp of the master station is OFF (SD, RD, CD are flickering).

Check the following master station's parameters.

| Parameter address ₍₈₎ | Contents | Setting value |
|----------------------------------|--------------------|---------------|
| 004002 ₍₈₎ | Data link function | 01 |
| 007777 ₍₈₎ | Start switch | 01 |

Other cases

- Check the switches of the JW-20CM (see check item)
- Check optional cable of PC (The JW-20CM does not operate normally without an optional cable.)
- Check cable and connector (see check item)
- Check error code

[Switches required check in the JW-20CM]

- ① Station number (STA NO.)
- ② Mode switch (MODE)
- ③ Termination resistance switch (LT)
- ④ Shield ground switch (LG)

If there are errors in the station number and the mode switch, change the setting with the power OFF, and then turn ON the power.

[Check items of cables and connectors]

- ① No looseness or removal of connectors (turn the connector right until it completely locks).
- ② Connectors are appropriately fixed on the cables (When any faults such as extrusion of pins or connector being easily removed by pulling, reinstall these connectors.)
- ③ Wiring conditions are appropriate (See chapters 6 and 7).
- ④ Not too long branch lines (shorter than 400 mm).
- ⑤ Termination resistance are correctly connected.

(Turn "ON" the termination resistance switch of the termination stations or install a termination tool.)

④ **When the communication error occurs instantaneously.**

Cause may be:

- Noise on the communication line.
- Fault of a communication module.
- Fault of a communication cable.

Check the error's timing.

When the error occurs synchronous with a peripheral industrial robot's operation, noise to the communication line may be a cause. Consider arrangement of the wiring route.

Identify the error station.

When the error occurs at only the specific station, the cause may be the station or nearby. Check the following items.

- Setting of the LT (termination resistance) switch.
- Cable (See page 9-64 "check items of cables and connectors")
- Error code (See page 9-54)

When identification of the cause is difficult.

Condition of the circuit may be unstable. (See page 9-64 "check items of cables and connectors")

⑤ **When the communication error occurs continuously.**

Identify the error station.

Specify the error's station using the communication flag etc., and check this station.

- Check the power of the error's station.
- Check the error code of the error's station.
- Check cables near the error's station. (See page 9-64 "check items of cables and connectors")

When identification of the cause is difficult.

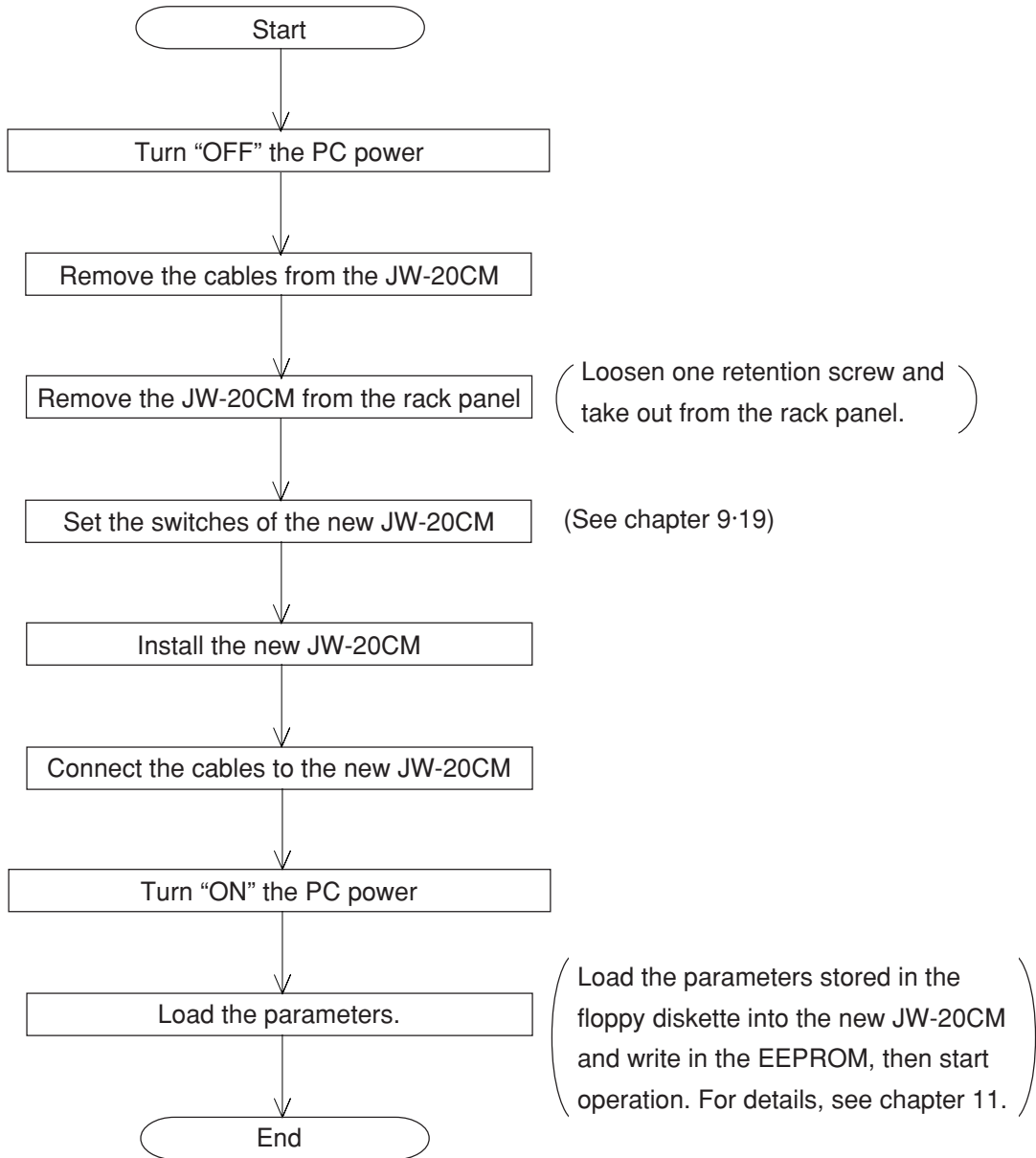
Condition of the whole circuit may be unstable. Check cables and connectors.
(See page 9-64 "check items of cables and connectors")

(5) Module replacement procedure

When you want to change the JW-20CM due to an operation fault (lighting FT lamp) etc., follow the procedures below.

(**Make sure to store the set parameters onto a floppy diskette using a support tools.**)
(See the next page)

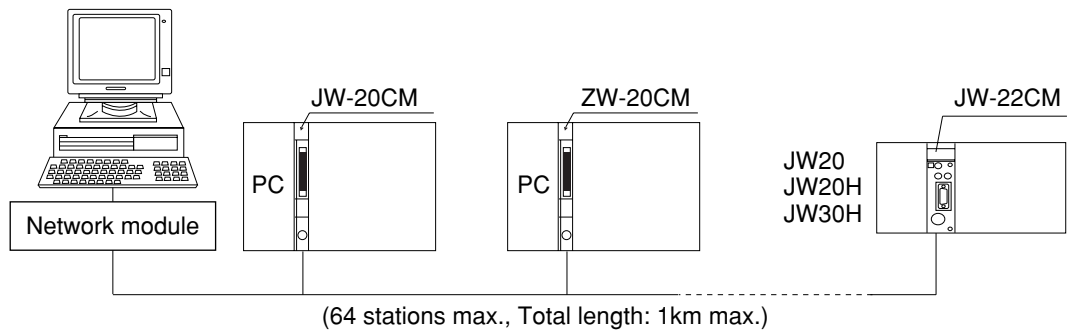
Operation procedure



Chapter 10 Computer link

10-1 Description for computer link

- You can transmit data between JW-20CM and host computer having a network module ZW-98CM/ZW-20AX and the like.
- Computer link function can not be used separate mode, but simultaneously with operation of data link function.
- Both JW and ZW model PCs can be connected on the same cable.



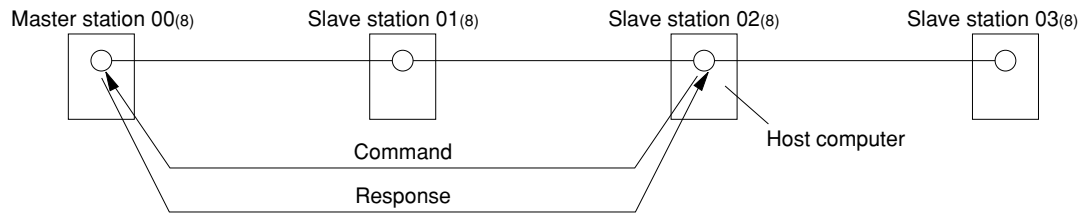
- In order to use the computer link function, you must use application software which can send a command from the host computer and receive a response from the opposite station.
See "Instruction manual of network module ZW-98CM/ZW-20AX etc." and the like for operation method on host computer side.

10-2 Communication method

The host computer communicates with each station number one by one.

- ① The host computer instructs station number/communication contents/memory address/data etc. of the communicating station as a “command.”
- ② The “command” receiving station processes this data and returns the result as “response.”

(System example)



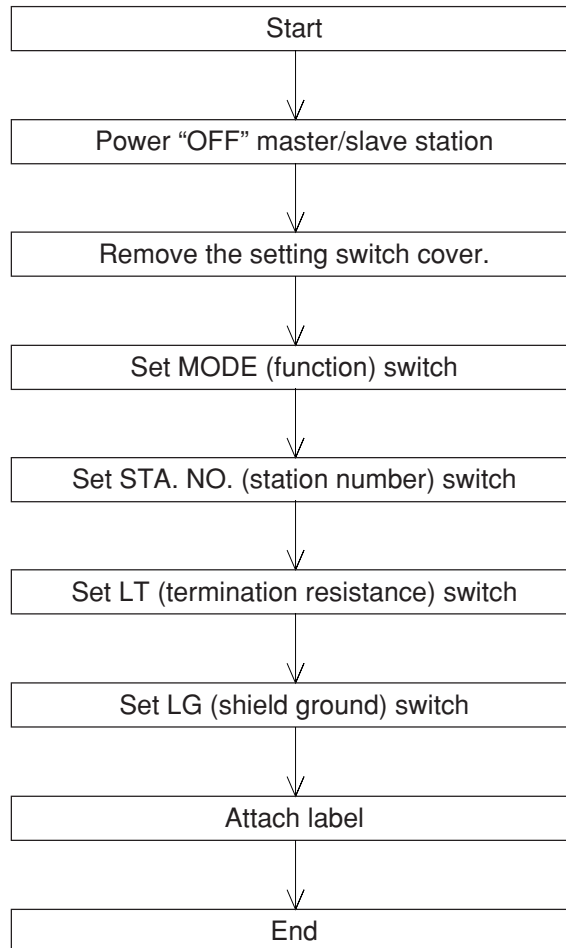
On the computer link, the host computer can communicate with any required station regardless of whether it is the master or slave station.

10-3 Switch setting

Same as setting switch of data link. (See page 9·17 to 9·21)

When you was already used for data link, setting switch is unnecessary.

Operation procedure



10-4 Command

For communication format etc., see network module ZW-98CM/ZW-20AX etc. instruction manual of host computer side.

Read out relay (1 point unit)

| | | |
|---------------------------|--|---|
| Function | Read out ON (01 _(H))/OFF (00 _(H)) status of specified relay. | |
| Command code | 00 _(H) (MRL) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | No | |
| Operation condition of PC | Unrelated | |
| Assignable address | 00000 to 15777 ₍₈₎ | |

Set/reset relay (1 point unit)

| | | |
|---------------------------|--|---|
| Function | Set (01 _(H))/reset (00 _(H)) the specified relay. | |
| Command code | 10 _(H) (SRR) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | No | |
| Operation condition of PC | Unrelated | |
| Assignable address | 00000 to 15777 ₍₈₎ | |

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

0: Writing prohibited

1: Enable writing only to data memory

2: Enable writing all data.

No setting: Enable writing in any mode

Read out current value of register/file register (1024 bytes max./ one time)

| | | |
|---------------------------|--|---|
| Function | Read out current value that specified register/file register | |
| Command code | 00 _(H) (MRG, RFLF) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | No | |
| Operation condition of PC | Unrelated | |
| Assignable address | | |

| When PC is ZW model | | When PC is JW model | |
|----------------------------------|----------------|----------------------------------|----------------|
| ∩0000 to ∩1577 | b0000 to b1777 | ∩0000 to ∩1577 | b0000 to b1777 |
| 09000 to 09777 | 19000 to 19777 | 09000 to 09777 | 19000 to 19777 |
| ※ File 1 to 7 : 000000 to 177777 | | 29000 to 29777 | 39000 to 39777 |
| | | 49000 to 49777 | 59000 to 59777 |
| | | 69000 to 69777 | 79000 to 79777 |
| | | 89000 to 89777 | 99000 to 99777 |
| | | E9000 to E9777 | E1000 to E1777 |
| | | ※ File 1 to 7 : 000000 to 177777 | |

※ Usable file number varies with memory module using for PC. (See page 13-21)

Write in register/file register (1024 bytes max./ one time)

| | | |
|---------------------------|--|---|
| Function | Write in manual data that specified register/file register | |
| Command code | 13 _(H) (SRT) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | 1 or 2 | |
| Operation condition of PC | Unrelated | |
| Assignable address | | |

| When PC is ZW model | | When PC is JW model | |
|----------------------------------|----------------|----------------------------------|----------------|
| ∩0000 to ∩1577 | b0000 to b1777 | ∩0000 to ∩1577 | b0000 to b1777 |
| 09000 to 09777 | 19000 to 19777 | 09000 to 09777 | 19000 to 19777 |
| ※ File 1 to 7 : 000000 to 177777 | | 29000 to 29777 | 39000 to 39777 |
| | | 49000 to 49777 | 59000 to 59777 |
| | | 69000 to 69777 | 79000 to 79777 |
| | | 89000 to 89777 | 99000 to 99777 |
| | | E9000 to E9777 | E1000 to E1777 |
| | | ※ File 1 to 7 : 000000 to 177777 | |

※ Usable file number varies with memory module using for PC. (See page 13-21)

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

- 0: Writing prohibited
- 1: Enable writing only to data memory
- 2: Enable writing all data.
- No setting: Enable writing in any mode

Write in same data to register/file register

| | | |
|---------------------------|--|--|
| Function | Write in same data that specified register/file register | |
| Command code | 12 _(H) (FRG) | Letters in brackets are command name of BASIC mode, but unavailable for writing in same data to file register. |
| Writing mode assignment | 1 or 2 | |
| Operation condition of PC | Unrelated | |
| Assignable address | | |

| When PC is ZW model | |
|----------------------------------|----------------|
| 30000 to 31577 | b0000 to b1777 |
| 09000 to 09777 | 19000 to 19777 |
| ※ File 1 to 7 : 000000 to 177777 | |

※ Usable file number varies with memory module using for PC. (See page 13·21)

| When PC is JW model | |
|----------------------------------|----------------|
| 30000 to 31577 | b0000 to b1777 |
| 09000 to 09777 | 19000 to 19777 |
| 29000 to 29777 | 39000 to 39777 |
| 49000 to 49777 | 59000 to 59777 |
| 69000 to 69777 | 79000 to 79777 |
| 89000 to 89777 | 99000 to 99777 |
| E9000 to E9777 | E1000 to E1777 |
| ※ File 1 to 7 : 000000 to 177777 | |

※

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

0: Writing prohibited

1: Enable writing only to data memory

2: Enable writing all data.

No setting: Enable writing in any mode

Read out current value of timer/counter/MD

| | | |
|---------------------------|--|---|
| Function | Read out current value that specified timer/counter/MD | |
| Command code | 03 ^(H) (MTC) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | No | |
| Operation condition of PC | Unrelated | |
| Assignable address | | |

: When PC is except for JW50H/70H/100H
0000 to 0777⁽⁸⁾

: When PC is JW50H/70H/100H
0000 to 0777⁽⁸⁾

Set/reset timer/counter (1 points unit)

| | | |
|---------------------------|---|---|
| Function | Set (timeup, countup) or reset (return to setting value) that specified timer/counter | |
| Command code | 13 ^(H) (SRT) | Letters in brackets are command name of BASIC mode. |
| Specify writing mode | 1 or 2 | |
| Operation condition of PC | Unrelated | |
| Assignable address | | |

: When PC is except for JW50H/70H/100H
0000 to 0777⁽⁸⁾

: When PC is JW50H/70H/100H
0000 to 0777⁽⁸⁾

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

- 0: Writing prohibited
- 1: Enable writing only to data memory
- 2: Enable writing all data.
- No setting: Enable writing in any mode

Read out current value of system memory (256 bytes max./one time)

| | | |
|---------------------------|---|---|
| Function | Read out current value that specified system memory | |
| Command code | 04 _(H) (RSM) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | 1 or 2 | |
| Operation condition of PC | Unrelated | |
| Assignable address | | |

| When PC is ZW model | | When PC is JW model | |
|---------------------|-------------------------------|---------------------|-------------------------------|
| Segment 0 | 00000 to 00177 ₍₈₎ | Segment 0 | 00000 to 00177 ₍₈₎ |
| Segment 8 | 00200 to 00377 ₍₈₎ | Segment 8 | 00200 to 02177 ₍₈₎ |

Write in system memory (256 bytes max./one time)

| | | |
|---------------------------|---|---|
| Function | Write in manual data to specified system memory | |
| Command code | 14 _(H) (WSM) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | 2 | |
| Operation condition of PC | Stopping | |
| Assignable address | | |

| When PC is ZW model | | When PC is JW model | |
|---------------------|-------------------------------|---------------------|-------------------------------|
| Segment 0 | 00000 to 00177 ₍₈₎ | Segment 0 | 00000 to 00177 ₍₈₎ |
| Segment 8 | 00200 to 00377 ₍₈₎ | Segment 8 | 00200 to 02177 ₍₈₎ |

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

- 0: Writing prohibited
- 1: Enable writing only to data memory
- 2: Enable writing all data.
- No setting: Enable writing in any mode

Read out program memory (512 steps max./one time)

| | | |
|--------------------------------------|--|---|
| Function | Read out contents that specified program memory using machine language. | |
| Command code | 05 _(H) (RPM) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | No | |
| Operation condition of PC | Unrelated | |
| Assignable address | When PC is ZW model 000000 to 076777 ₍₈₎ | |
| Address varies with memory capacity. | When PC is JW50, JW50H 000000 to 016777 ₍₈₎ | |
| | When PC is JW70/100, JW70H/100H 000000 to 076777 ₍₈₎ , 100000 to 176777 ₍₈₎ | |

Write in program memory (512 steps max./one time)

| | | |
|--------------------------------------|--|---|
| Function | Write in manual instruction words to specified program memory. | |
| Command code | 15 _(H) (WPM) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | 2 | |
| Operation condition of PC | Stopping | |
| Assignable address | When PC is ZW model 000000 to 076777 ₍₈₎ | |
| Address varies with memory capacity. | When PC is JW50, JW50H 000000 to 016777 ₍₈₎ | |
| | When PC is JW70/100, JW70H/100H 000000 to 076777 ₍₈₎ , 100000 to 176777 ₍₈₎ | |

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

- 0: Writing prohibited
- 1: Enable writing only to data memory
- 2: Enable writing all data.
- No setting: Enable writing in any mode

Change the setting value of timer/counter (1 point unit)

| | | |
|---------------------------|--|---|
| Function | Change the assigned value of the timer/counter to any value. | |
| Command code | 16 _(H) (CTC) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | 2 | |
| Operation condition of PC | Unrelated | |
| Assignable address | When PC is ZW model | |
| | Segment 8 000000 to 076777 ₍₈₎ | |
| | When PC is JW model | |
| | Segment 9 000000 to 076777 ₍₈₎ | |

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

0: Writing prohibited

1: Enable writing only to data memory

2: Enable writing all data.

No setting: Enable writing in any mode

Read out operation status of PC

Function

Read out PC operation status of specified stations.

Command code

20_(H) (MPC)

Letters in brackets are command name of BASIC mode.

Writing mode assignment

No

Operation condition of PC

Unrelated

Data

| Operation condition of PC | Data |
|--|-------------------|
| During operating | 00 _(H) |
| Stop by other option module | 01 _(H) |
| Stop by HALT(30 _(H)) command | 02 _(H) |

Stop/restart operation of PC

Function

Stop or restart PC's operation of specified stations.

Command code

30_(H) (HLT, RUN)

Letters in brackets are command name of BASIC mode.

Writing mode assignment

No

Operation condition of PC

Unrelated

Data

| Operation condition of PC | Data |
|---------------------------|-------------------|
| Stop operation | 00 _(H) |
| Restart operation | 01 _(H) |

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

- 0: Writing prohibited
- 1: Enable writing only to data memory
- 2: Enable writing all data.
- No setting: Enable writing in any mode

Read out program memory capacity

| Function | Read out program memory capacity of specified stations. | | | | | | | | | | | | | |
|---------------------------|---|---|-----------------|------|-------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|------------|-------------------|
| Command code | 21 _(H) (VLM) | Letters in brackets are command name of BASIC mode. | | | | | | | | | | | | |
| Writing mode assignment | No | | | | | | | | | | | | | |
| Operation condition of PC | Unrelated | | | | | | | | | | | | | |
| Data | <table border="1"> <thead> <tr> <th>Memory capacity</th> <th>Data</th> </tr> </thead> <tbody> <tr> <td>7.5 K Words</td> <td>00_(H)</td> </tr> <tr> <td>15.5 K Words</td> <td>01_(H)</td> </tr> <tr> <td>23.5 K Words</td> <td>02_(H)</td> </tr> <tr> <td>31.5 K Words</td> <td>03_(H)</td> </tr> <tr> <td>63 K Words</td> <td>04_(H)</td> </tr> </tbody> </table> | | Memory capacity | Data | 7.5 K Words | 00 _(H) | 15.5 K Words | 01 _(H) | 23.5 K Words | 02 _(H) | 31.5 K Words | 03 _(H) | 63 K Words | 04 _(H) |
| Memory capacity | Data | | | | | | | | | | | | | |
| 7.5 K Words | 00 _(H) | | | | | | | | | | | | | |
| 15.5 K Words | 01 _(H) | | | | | | | | | | | | | |
| 23.5 K Words | 02 _(H) | | | | | | | | | | | | | |
| 31.5 K Words | 03 _(H) | | | | | | | | | | | | | |
| 63 K Words | 04 _(H) | | | | | | | | | | | | | |

Set program memory capacity

| Function | Write in system memory #204 for memory capacity that specified station. | | | | | | | | | | | | | |
|---------------------------|---|---|-----------------|------|-------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|------------|-------------------|
| Command code | 30 _(H) (SVL) | Letters in brackets are command name of BASIC mode. | | | | | | | | | | | | |
| Writing mode assignment | No | | | | | | | | | | | | | |
| Operation condition of PC | Stopping | | | | | | | | | | | | | |
| Data | <table border="1"> <thead> <tr> <th>Memory capacity</th> <th>Data</th> </tr> </thead> <tbody> <tr> <td>7.5 K Words</td> <td>00_(H)</td> </tr> <tr> <td>15.5 K Words</td> <td>01_(H)</td> </tr> <tr> <td>23.5 K Words</td> <td>02_(H)</td> </tr> <tr> <td>31.5 K Words</td> <td>03_(H)</td> </tr> <tr> <td>63 K Words</td> <td>04_(H)</td> </tr> </tbody> </table> | | Memory capacity | Data | 7.5 K Words | 00 _(H) | 15.5 K Words | 01 _(H) | 23.5 K Words | 02 _(H) | 31.5 K Words | 03 _(H) | 63 K Words | 04 _(H) |
| Memory capacity | Data | | | | | | | | | | | | | |
| 7.5 K Words | 00 _(H) | | | | | | | | | | | | | |
| 15.5 K Words | 01 _(H) | | | | | | | | | | | | | |
| 23.5 K Words | 02 _(H) | | | | | | | | | | | | | |
| 31.5 K Words | 03 _(H) | | | | | | | | | | | | | |
| 63 K Words | 04 _(H) | | | | | | | | | | | | | |

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

- 0: Writing prohibited
- 1: Enable writing only to data memory
- 2: Enable writing all data.
- No setting: Enable writing in any mode

Read out status of write mode

Function

Read out status of write mode that specified stations.

Command code

22_(H) (SWE)

Letters in brackets are command name of BASIC mode.

Writing mode assignment

No

Operation condition of PC

Unrelated

Data

| Write mode | Data |
|------------|-------------------|
| 0 | 00 _(H) |
| 1 | 01 _(H) |
| 2 | 02 _(H) |

Set write mode

Function

Set write mode that specified stations.

Command code

32_(H) (EWR)

Letters in brackets are command name of BASIC mode.

Writing mode assignment

No

Operation condition of PC

Unrelated

Data

| Write mode | Data |
|------------|-------------------|
| 0 | 00 _(H) |
| 1 | 01 _(H) |
| 2 | 02 _(H) |

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

- 0: Writing prohibited
- 1: Enable writing only to data memory
- 2: Enable writing all data.
- No setting: Enable writing in any mode

Read out bit status of parameter memory

| Function | Read out parameter memory status of ZW/JW-20CM that specified stations. | | | | | | | | | | | | | | | |
|--|---|---|---------|-------------------|--------|-------------------|--|---|--------------|------|---|-------------------|----|----|---|-------------------|
| Command code | 08 _(H) (PML) | Letters in brackets are command name of BASIC mode. | | | | | | | | | | | | | | |
| Operation condition of PC | Unrelated | | | | | | | | | | | | | | | |
| Set at link operation (Parameter address 007777 ₍₈₎ of ZW/JW-20CM) | Unrelated | | | | | | | | | | | | | | | |
| Assignable address | 000000 to 007777 ₍₈₎ | | | | | | | | | | | | | | | |
| Data | | Set bit position | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Bit condition</th> <th>Data</th> </tr> </thead> <tbody> <tr> <td>0 (OFF)</td> <td>00_(H)</td> </tr> <tr> <td>1 (ON)</td> <td>01_(H)</td> </tr> </tbody> </table> | Bit condition | Data | 0 (OFF) | 00 _(H) | 1 (ON) | 01 _(H) | | <table border="1"> <thead> <tr> <th>Bit position</th> <th>Data</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>00_(H)</td> </tr> <tr> <td>to</td> <td>to</td> </tr> <tr> <td>7</td> <td>07_(H)</td> </tr> </tbody> </table> | Bit position | Data | 0 | 00 _(H) | to | to | 7 | 07 _(H) |
| Bit condition | Data | | | | | | | | | | | | | | | |
| 0 (OFF) | 00 _(H) | | | | | | | | | | | | | | | |
| 1 (ON) | 01 _(H) | | | | | | | | | | | | | | | |
| Bit position | Data | | | | | | | | | | | | | | | |
| 0 | 00 _(H) | | | | | | | | | | | | | | | |
| to | to | | | | | | | | | | | | | | | |
| 7 | 07 _(H) | | | | | | | | | | | | | | | |

Set/reset bit of parameter memory

| Function | Set/reset parameter memory bit of ZW/JW-20CM that specified stations. | | | | | | | | | | | | | | | |
|--|---|---|---------|-------------------|--------|-------------------|--|---|--------------|------|---|-------------------|----|----|---|-------------------|
| Command code | 18 _(H) (PWL) | Letters in brackets are command name of BASIC mode. | | | | | | | | | | | | | | |
| Operation condition of PC | Stopping | | | | | | | | | | | | | | | |
| Set at link operation (Parameter address 007777 ₍₈₎ of ZW/JW-20CM) | Stop (Unrelated in case that set/reset of address 007777 ₍₈₎) | | | | | | | | | | | | | | | |
| Assignable address | 000000 to 007777 ₍₈₎ | | | | | | | | | | | | | | | |
| Data | | Set bit position | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Bit condition</th> <th>Data</th> </tr> </thead> <tbody> <tr> <td>0 (OFF)</td> <td>00_(H)</td> </tr> <tr> <td>1 (ON)</td> <td>01_(H)</td> </tr> </tbody> </table> | Bit condition | Data | 0 (OFF) | 00 _(H) | 1 (ON) | 01 _(H) | | <table border="1"> <thead> <tr> <th>Bit position</th> <th>Data</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>00_(H)</td> </tr> <tr> <td>to</td> <td>to</td> </tr> <tr> <td>7</td> <td>07_(H)</td> </tr> </tbody> </table> | Bit position | Data | 0 | 00 _(H) | to | to | 7 | 07 _(H) |
| Bit condition | Data | | | | | | | | | | | | | | | |
| 0 (OFF) | 00 _(H) | | | | | | | | | | | | | | | |
| 1 (ON) | 01 _(H) | | | | | | | | | | | | | | | |
| Bit position | Data | | | | | | | | | | | | | | | |
| 0 | 00 _(H) | | | | | | | | | | | | | | | |
| to | to | | | | | | | | | | | | | | | |
| 7 | 07 _(H) | | | | | | | | | | | | | | | |

Read out parameter memory contents

| | | |
|---|---|---|
| Function | Read out parameter memory contents of ZW/JW-20CM that specified stations. | |
| Command code | 09 ^(H) (PMR) | Letters in brackets are command name of BASIC mode. |
| Operation condition of PC | Unrelated | |
| Set at link operation (Parameter address 007777 ⁽⁸⁾ of ZW/JW-20CM) | Unrelated | |
| Assignable address | 000000 to 007777 ⁽⁸⁾ | |

Write in parameter memory

| | | |
|---|--|---|
| Function | Write in manual data for parameter memory of ZW/JW-20CM that specified stations. | |
| Command code | 19 ^(H) (PMR) | Letters in brackets are command name of BASIC mode. |
| Operation condition of PC | Stopping | |
| Set at link operation (Parameter address 007777 ⁽⁸⁾ of ZW/JW-20CM) | Stop (Unrelated in case that write in address 007777 ⁽⁸⁾) | |
| Assignable address | 000000 to 007777 ⁽⁸⁾ | |

Read out date (PC of JW model)

| | | |
|---------------------------|--|---|
| Function | Read out date that specified stations. | |
| Command code | 23 _(H) (MDY) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | No | |
| Operation condition of PC | Unrelated | |
| Data | | |

| Year | Month | Day | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|----------|----------|----------|--------|--------|---------|-----------|----------|--------|----------|
| 00 to 99 | 01 to 12 | 01 to 31 | 00 | 01 | 02 | 03 | 04 | 05 | 06 |

Write in date (PC of JW model)

| | | |
|---------------------------|-----------------------------------|---|
| Function | Set date that specified stations. | |
| Command code | 33 _(H) (SDY) | Letters in brackets are command name of BASIC mode. |
| Writing mode assignment | 1 or 2 | |
| Operation condition of PC | Unrelated | |
| Data | | |

| Year | Month | Day | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|----------|----------|----------|--------|--------|---------|-----------|----------|--------|----------|
| 00 to 99 | 01 to 12 | 01 to 31 | 00 | 01 | 02 | 03 | 04 | 05 | 06 |

10

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

- 0: Writing prohibited
- 1: Enable writing only to data memory
- 2: Enable writing all data.
- No setting: Enable writing in any mode

Read out times (PC of JW model)

| Function | Read out times that specified stations. | | | | | | |
|---------------------------|---|----------|--------|--------|----------|----------|----------|
| Command code | 24 _(H) (MTM) | | | | | | |
| Writing mode assignment | No | | | | | | |
| Operation condition of PC | Unrelated | | | | | | |
| Data | <table border="1"> <thead> <tr> <th>Time</th> <th>Minute</th> <th>Second</th> </tr> </thead> <tbody> <tr> <td>00 to 23</td> <td>00 to 59</td> <td>00 to 59</td> </tr> </tbody> </table> | Time | Minute | Second | 00 to 23 | 00 to 59 | 00 to 59 |
| Time | Minute | Second | | | | | |
| 00 to 23 | 00 to 59 | 00 to 59 | | | | | |

Letters in brackets are command name of BASIC mode.

Write in times (PC of JW model)

| Function | Set times that specified stations. | | | | | | |
|---------------------------|---|----------|--------|--------|----------|----------|----------|
| Command code | 34 _(H) (STM) | | | | | | |
| Writing mode assignment | 1 or 2 | | | | | | |
| Operation condition of PC | Unrelated | | | | | | |
| Data | <table border="1"> <thead> <tr> <th>Time</th> <th>Minute</th> <th>Second</th> </tr> </thead> <tbody> <tr> <td>00 to 23</td> <td>00 to 59</td> <td>00 to 59</td> </tr> </tbody> </table> | Time | Minute | Second | 00 to 23 | 00 to 59 | 00 to 59 |
| Time | Minute | Second | | | | | |
| 00 to 23 | 00 to 59 | 00 to 59 | | | | | |

Letters in brackets are command name of BASIC mode.

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

- 0: Writing prohibited
- 1: Enable writing only to data memory
- 2: Enable writing all data.
- No setting: Enable writing in any mode

Correct time (PC of JW model)

Function

Correct time that specified stations.

Command code

35_(H) (ACL)

Letters in brackets are command name of BASIC mode.

Writing mode assignment

1 or 2

Operation condition of PC

Unrelated

Data

| Operate clock | Stop clock | Correct 30 sec. |
|---------------|------------|-----------------|
| 00 | 01 | 08 |

· "Writing mode assignment" is used to show whether writing to the PC memory has been enabled or disabled.

0: Writing prohibited

1: Enable writing only to data memory

2: Enable writing all data.

No setting: Enable writing in any mode

Read out data by F-200 instruction

| | | |
|---------------------------|--|---|
| Function | Read out data that specified station using application instructions F-200. | |
| Command code | 40 _(H) (F200) | Letters in brackets are command name of BASIC mode. |
| Operation condition of PC | Unrelated | |

Write in data by F-201 instruction

| | | |
|---------------------------|--|---|
| Function | Write in data that specified station using application instructions F-201. | |
| Command code | 50 _(H) (F201) | Letters in brackets are command name of BASIC mode. |
| Operation condition of PC | Unrelated | |

Read out data by SEND instructions (PC of JW model)

| | | |
|---------------------------|---|---|
| Function | Read out data that specified station using SEND instructions. | |
| Command code | 41 _(H) (SNDF) | Letters in brackets are command name of BASIC mode. |
| Operation condition of PC | Unrelated | |

Read out data by RECEIVE instructions (PC of JW model)

| | | |
|---------------------------|---|---|
| Function | Request data that specified station using RECEIVE instructions. | |
| Command code | 51 _(H) (RCVF) | Letters in brackets are command name of BASIC mode. |
| Operation condition of PC | Unrelated | |

Chapter 11 Support Tools

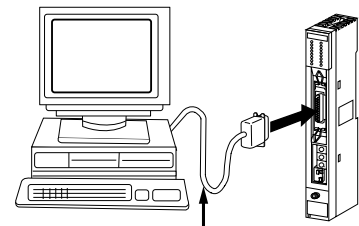
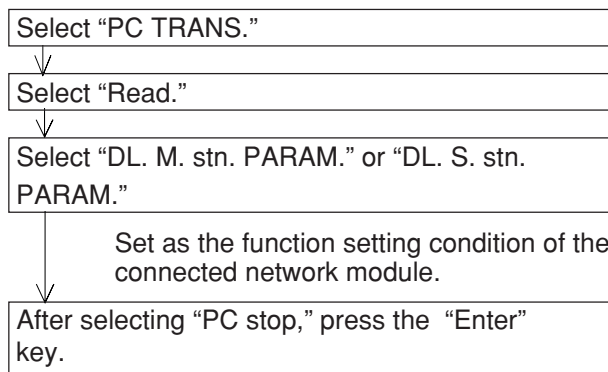
The following support tools are available to record (store), and load the contents of the parameter memory. (Make sure to save the set parameters onto a floppy diskette.)

| Model name | Applicable floppy diskettes |
|-----------------------------------|----------------------------------|
| Ladder software (JW-50SP) | 3.5-inch 2DD/2HD, 5-inch 2DD/2HD |
| Multipurpose programmer (JW-50PG) | 3.5-inch 2DD |
| Ladder processor II (Z-100LP2S) | 3.5-inch 2DD |

11-1 Record and load by ladder software (JW-50SP)

(1) Record

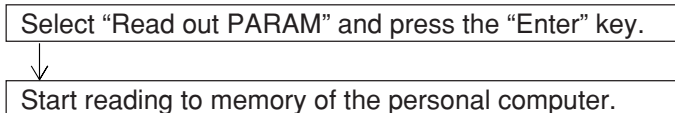
① Stop operation of the JW-20CM



- Communication adaptor supplied with JW-50SP
- Converter supplied with JW-50SP
- Control module connection cable

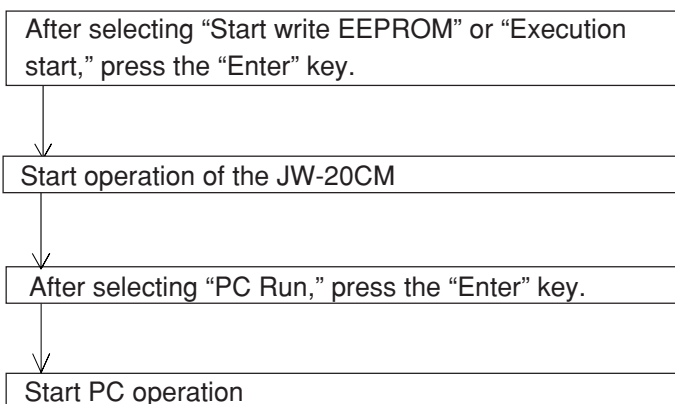
② Record onto the personal computer

After stopping operation, record the parameters of the JW-20CM onto the memory of the personal computer.



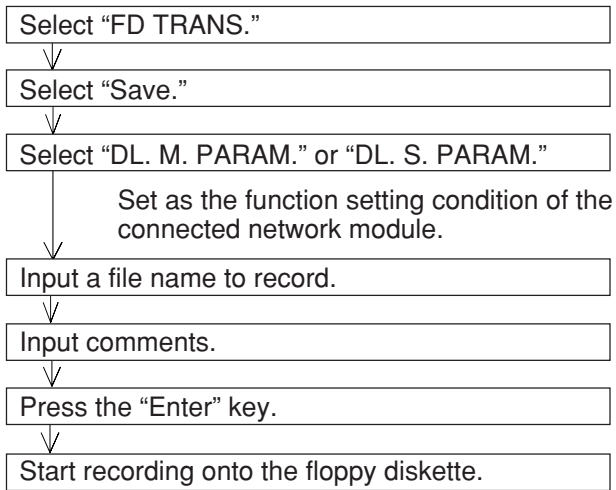
③ Start operation of the JW-20CM

After recording the parameters onto the personal computer, start operation of the JW-20CM.



④ **Record onto a floppy diskette**

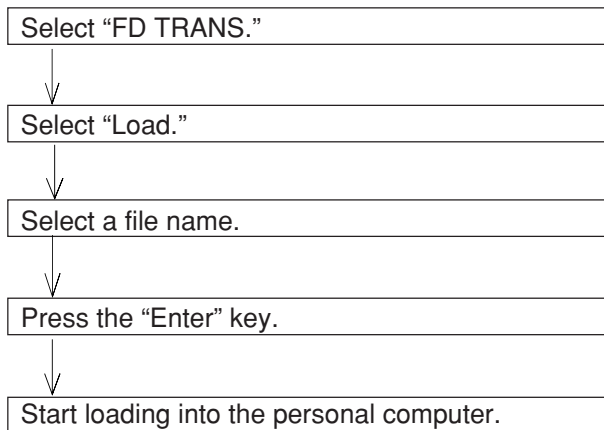
Write (record) the memory contents of the personal computer onto a floppy diskette.



(2) Load

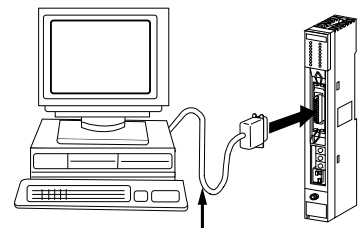
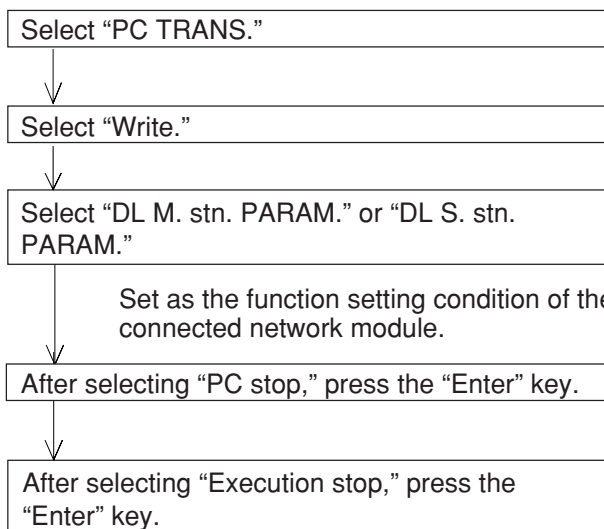
① Load to the personal computer

Load the contents of the floppy diskette into the memory of the personal computer.



② Stop operation of the JW-22CM

After stopping operation, load the memory contents of the personal computer into the JW-20CM.



- Communication adaptor supplied with JW-50SP
- Converter supplied with JW-50SP
- Control module connection cable

③ **Load to the JW-20CM**

After stopping operation, load the memory contents of the personal computer into the JW-20CM.

After selecting "Parameter writing," press the "Enter" key.



Start loading into the JW-20CM.

④ **Start operation of the JW-20CM**

After loading the parameters from the personal computer, start operation of the JW-20CM.

After selecting "Start: write EEPROM" or "Execution start," press the "Enter" key.



Start operation of the JW-20CM



After selecting "PC Run," press the "Enter" key.



Start PC operation

11-2 Remote function

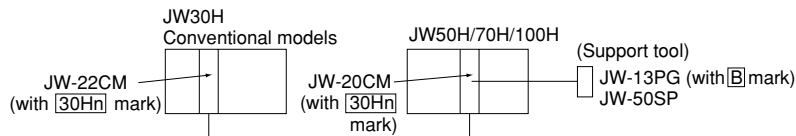
(1) Remote programming and remote monitor

This paragraph describes the operation procedure of any other station's PC which is connected in the satellite net. The following support tools are available:

- Hand-held programmer JW-13PG/12PG
- Multipurpose programmer JW-50PG
- Ladder software JW-50SP

Note 1

- If the JW-20CM remotely programs or monitors the new JW30H model (JW-31CUH1/32CUH1/33CUH1/33CUH2/33CUH3), they should be used in the combination below.



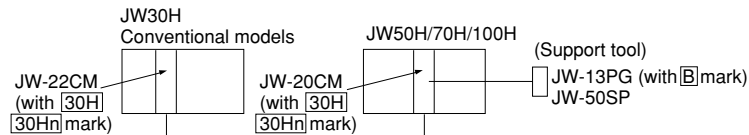
If the JW-20CM, to which a support tool is connected, has a [30H] sticker, the JW-20CM will identify the new JW30H model as conventional model (JW-31CUH/32CUH/33CUH).

If the JW-20CM, to which a support tool is connected, does not have a [30H] [30Hn] sticker, it must be used with the following limitations.

Ex.:

- If the JW-13PG has a [B] sticker, it will identify the new JW30H model as JW20H (JW-22CU).
- If a support tool JW-50SP is used, it will identify the new JW30H model properly. However, it cannot handle the secret function.

- If the JW-20CM remotely programs or monitors the conventional JW30H model (JW-31CUH/32CUH/33CUH), they should be used in the combination below.



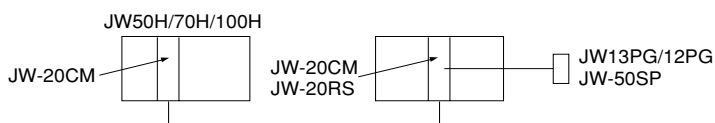
If the JW-20CM, to which a support tool is connected, does not have a [30H] [30Hn] sticker, it must be used with the following limitations.

Ex.:

- If a support tool JW-13PG is used, it will identify the conventional JW30H model as JW20H (JW-22CU).
- If a support tool JW-50SP is used, it will identify the conventional JW30H model properly. However, it cannot handle the secret function.

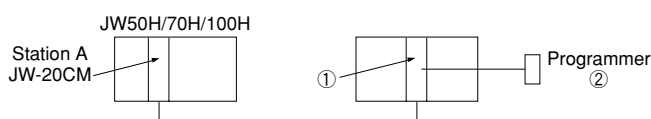
Note 2

- If you want to use the remote programming and monitoring functions with the JW50H/70H/100H, use the modules in the combinations shown below. If they are arranged in some other fashion, you cannot use the JW50H/70H/100H expansion function properly (with the JW50/70/100).



Ex.: If remote programming or remote monitoring is executed with the combination below (enter 200₍₈₎ or 201₍₈₎ at station A system memory address #0201), there are the following limitations:

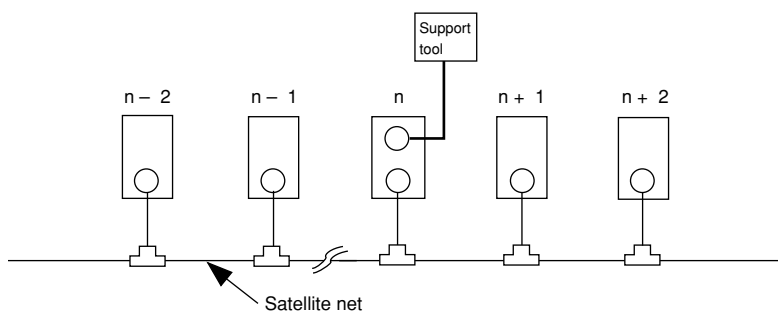
- TMR/CNT1000 to 1777 will not be displayed properly.
- You will be unable to write/insert/delete programs using the TMR/CNT instructions.



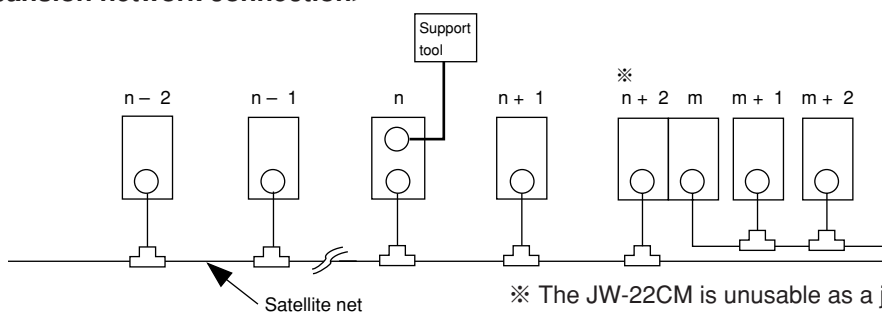
- If ① is a ZW-20CM and ② is a JW-12PG.
- If ① is a ZW/JW-20CM and ② is a JW-11PG.

① **Function**

<Standard network connection>



<Expansion network connection>



※ The JW-22CM is unusable as a junction station ("n + 2" station and "m" station in the figure above). Use JW30H (JW-22CM), JW50H/70H/100H (JW-20CM)

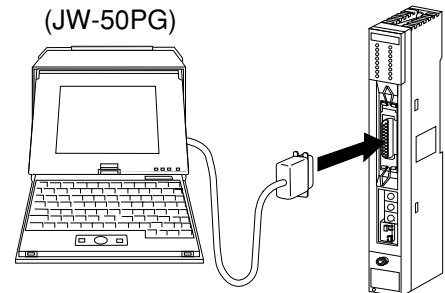
The following operations are possible for "n" station and other stations using a support tool which is connected to the "n" station for standard/expansion network connection.

- Change program (Writing data (change program) during operation of the PC is not available for hazard prevention reasons. Stop operation of the PC prior to writing data.)
- Monitor
- Change of parameter memory (only available for JW-13PG/12PG)

② Operation example

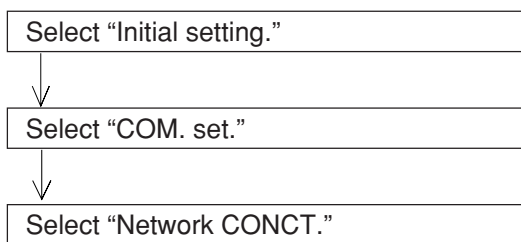
This paragraph describes an operation example using the multipurpose programmer: JW-50PG. For operations with other support tools, see the attached instruction manuals.

- Connect the JW-50PG to the JW-20CM on the satellite net.



- Set communication mode

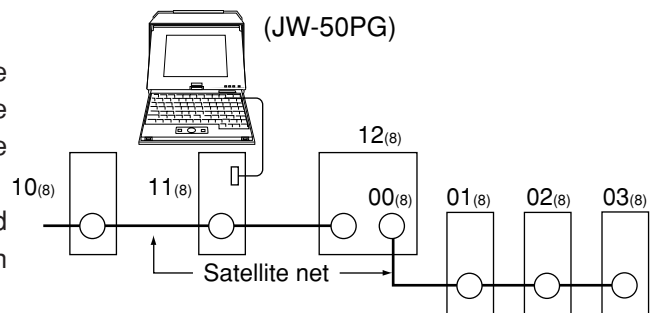
Set the communication mode of the JW-50PG to "Network CONCT." and this enables remote programming and remote monitor.



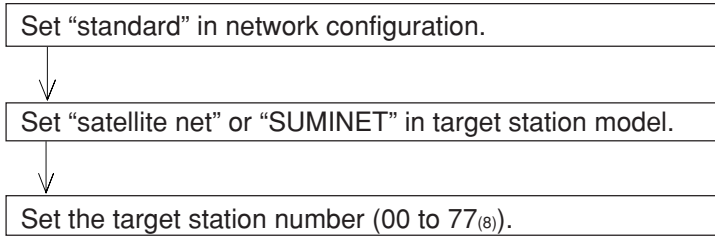
- Network setting

Select whether the target station for remote programming or remote monitor is on the standard network connection or on the extension network connection.

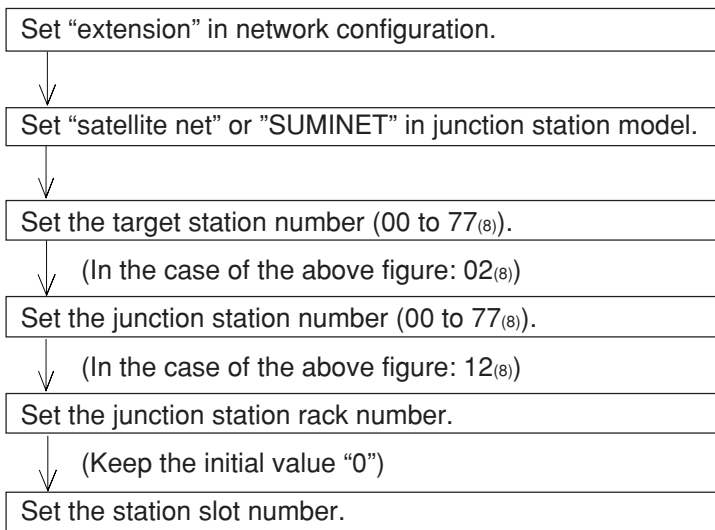
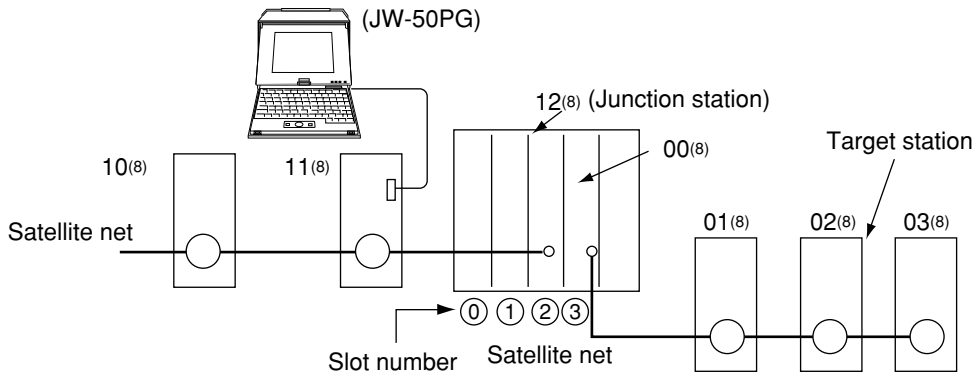
In the case below, 10 to 12₍₈₎ are standard network connections. 01 to 03₍₈₎ are extension network connections.



<Standard network connection>



<Expansion network connection>



(Set the installed slot number of the master station on the target station side. In the case of the above figure: 3.)

(2) Parameter setting by remote function

This paragraph describes how to set the parameters of other stations' network module connected on the satellite net.

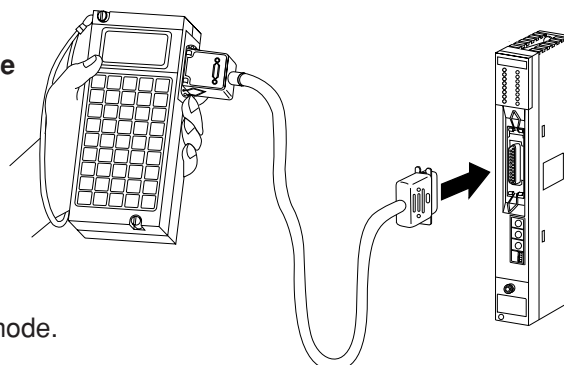
This is only available when the target station is within the standard network connection.

Usable support tools are JW-13PG/12PG.

<An operation example using the JW-13PG>

① Connect the programmer to the network module

Connect the programmer to the network module on the satellite net.



② Setting mode

Select initial mode.

→ Display initial mode.

③ Assign the link

Assign the parameter setting remotely.

→ Select "LINK" in initial.

→ Select display mode of "1PG, 2PG1 MODE" in specified link.

→ Select "TARGET STA." in 1PG, 2PG1 MODE.

④ Setting target station

Select the target station to set the parameter remotely.


→ Change the code from hexadecimal_(H) display to octal_(O) display and input the target station (00₍₈₎ to 77₍₈₎).

⑤ Communication with the target station

→ Initiate communication with the target station.

⑥ Setting parameter






After finishing communication with the target station, set the parameters remotely.



 → Return to initial menu.

Turn the PC of the target station to program mode (stop PC operation).






Select "PARAM." in the initial mode.

<<In case of remote I/O function>>


     → Display contents of parameter address 003777₍₈₎.


  → Write in 00_(H), stop operation of the JW-20CM.

<<In case of data link function>>

     → Display contents of parameter address 007777₍₈₎.

  → Write in 00_(H), stop operation of the JW-20CM.

Input address  → Display contents of address to set the parameters.

Input setting value  → Setting parameter remotely.

⑦ Writing to the EEPROM, start operation

After setting the parameter remotely in step ⑥, write 81_(H) at parameter address 003777₍₈₎ (when at remote I/O function), or at 00777₍₈₎ (when at data link function), to start the "writing operation to EEPROM."

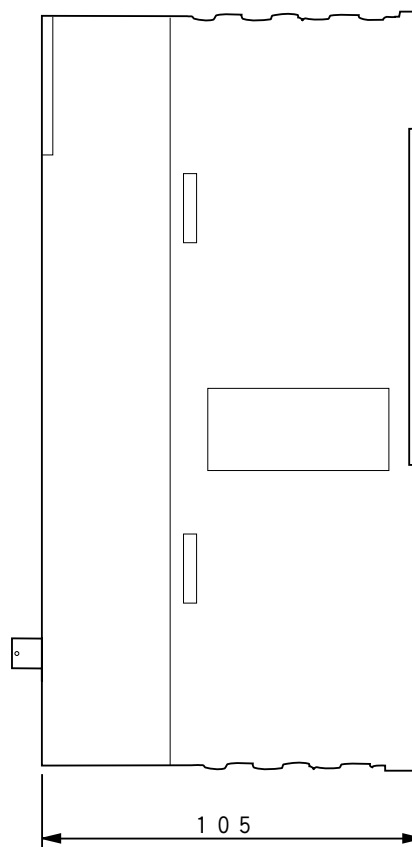
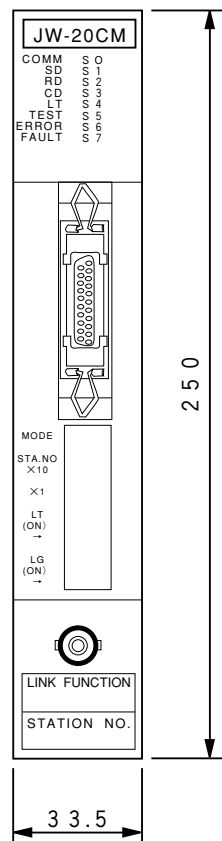
Chapter 12 Specifications

12-1 JW-20CM

(1) General specifications

| Item | Specifications |
|----------------------------|---|
| Storage temperature | - 20 to + 70° C |
| Ambient temperature | 0 to + 55° C |
| Ambient humidity | 35 to 90%RH (without moisture condensation) |
| Vibration resistance | JIS-C-0911 equivalent (X,Y, Z, 2 hours in each) |
| Shock resistance | JIS-C-0911 equivalent |
| Internal power consumption | 465 mA (5VDC) |
| Weight | Approx. 450g |
| Accessories | One instruction manual , One setting label |

[Outline dimension drawings]



(Unit : mm)

(2) Communication specifications

| Item | Specification |
|------------------------------|---|
| Communication method | Token/passing |
| Transmission rate | 1.25M bits/s |
| Transmission format | JIS X-5014 high level data link control procedure (HDLC) frame configuration compatible |
| Coding method | NRZI (Non Return To Zero Inverted) |
| Check method | CRC |
| Sync method | Bit synchronous |
| Modulation method | Continuous frequency phase modulation (FSK) |
| Communication network system | Bus type |
| Connectors | Module side: BNC receptacle (jack) Line side: BNC plug |
| Transmission line | Coaxial cable: 5C-2V (JIS · C-3501) Characteristics impedance: 75 ohm Total cable distance: 1 km max. |

(3) Specifications of each function

① Specifications of remote I/O slave station

| Item | Specification | |
|---|------------------------|---|
| No. of remote I/O slave station | 63 sets max. | |
| Total no. of remote I/O points | 4096 points max. | |
| No. of remote I/O points | Fix allocation | Per station 64 points : Total of 63 stations 4032 points |
| | | Per station 128 points : Total of 32 stations 4096 points |
| | Manual allocation | Per station 8 to 1024 points : Total of 4096 points |
| Synchronous method with PC operation | Operation synchronous | Communicates synchronously with the PC's I/O processing cycle. |
| | Operation asynchronous | Communicates separate with the PC's I/O processing cycle. |

② Data link specifications

| Item | | Specification | |
|--|----------------------------------|--|---|
| | | Relay link | Register link |
| No. of data link stations | | 64 sets max. | |
| Link area | ZW-PC | File 0 (000000 to 005777 ⁽⁸⁾) | File 0 (000000 to 015777 ⁽⁸⁾) File 1 to 7 (000000 to 177777 ⁽⁸⁾) |
| | JW-PC | File 0 (000000 to 007777 ⁽⁸⁾) | |
| Total no. of link points | | 2048 points max. (256 bytes) | 2048 bytes max. |
| Total no. of sending/receiving points per slave station | Standard function | 2048 points max. (256 bytes) | 2048 bytes max. |
| | Memory capacity save function | 512 points max. (64 bytes) | 512 bytes max. |
| Communication mode | | N:M communication | |

③ Computer link specifications

| Item | Specification |
|-------------------------|---|
| No. of link stations | 64 sets max. |
| Communication data size | 1024 bytes max./packet * |
| Communication control | According to the host computer command |
| Control contents | Read/write of data memory Read/write of program memory PC control |

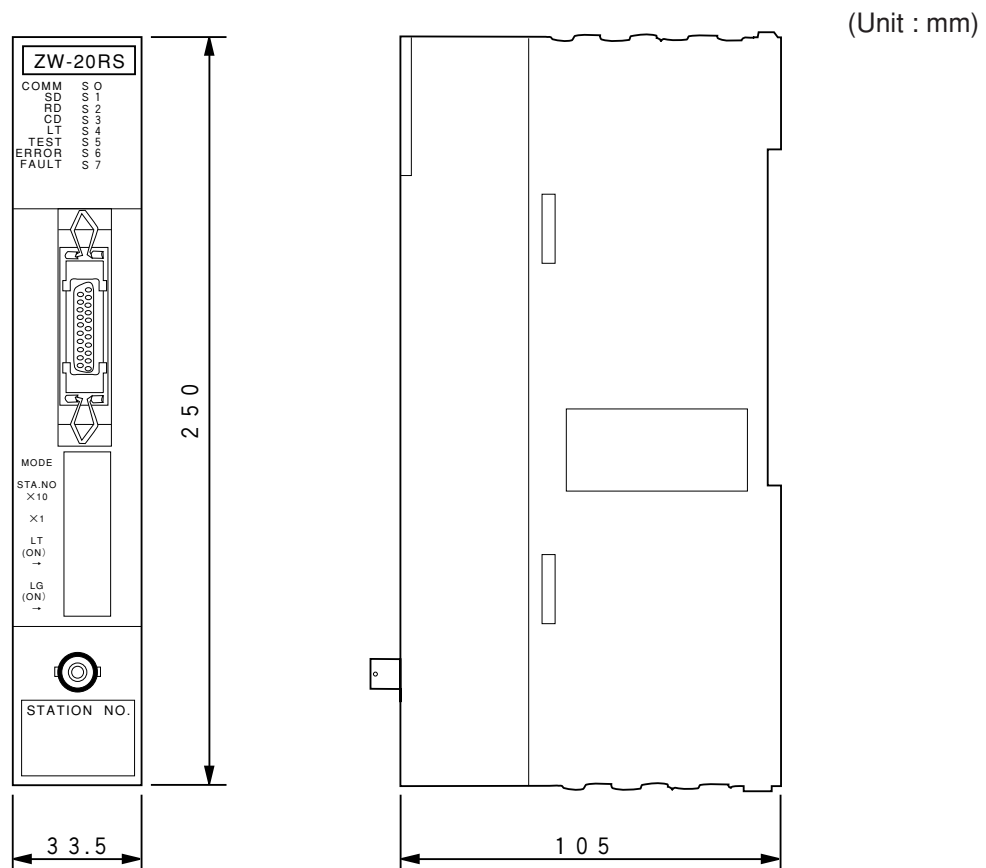
* The amount of data attributed to the command, or response. The term "packet" refers to the value for each station.

12-2 JW-20RS

(1) General specifications

| Item | Specifications |
|----------------------------|--|
| Storage temperature | - 20 to + 70° C |
| Ambient temperature | 0 to + 55° C |
| Ambient humidity | 35 to 90%RH (without moisture condensation) |
| Vibration resistance | JIS-C-0911 equivalent (X,Y, Z , 2 hours in each) |
| Shock resistance | JIS-C-0911 equivalent |
| Internal power consumption | 600 mA (5VDC) |
| Weight | Approx. 570g |

[Outline dimension drawings]



(2) Communication specifications

Communication specifications is same as JW-20CM.

(See page 12·2)

Chapter 13 Appendix






13-1 Maintenance and check

Check wiring, installation, and switch settings.






| Check item | | System configuration | | | | |
|--|--|----------------------|-----|-----|-----|-----|
| | | () | () | () | () | () |
| Communication cable | Not parallel with or proximate to high voltage lines or strong power lines. | | | | | |
| | Branch lines (drop cable) are within 400 mm. | | | | | |
| | Total length is less than 1 km. | | | | | |
| | No damage or breaks in cables. | | | | | |
| | Connectors are securely assembled. | | | | | |
| | Connectors are securely connected and locked. | | | | | |
| | Insulation covers are put on connectors. | | | | | |
| Power supply module | Securely tighten the module retention screws. | | | | | |
| | A ground line is connected with the GND terminal. | | | | | |
| Control module | Securely tighten the module retention screws. | | | | | |
| | Memory module is appropriately installed. | | | | | |
| I/O module | Securely tighten the module retention screws. | | | | | |
| | No other cables than the communication cable and DC input cables are input in the same duct. | | | | | |
| Basic rack panel is appropriately installed. | | | | | | |
| JW-20CM/20RS | Securely tighten the module retention screws. | | | | | |
| | Mode switches are appropriately set. | | | | | |
| | Station number switches are appropriately set (00 to 77 ⁽⁸⁾). | | | | | |
| | Termination resistance switches are appropriately set. | ON | | | | |
| | Shield ground switches are appropriately set. | | | | | |
| | Parameters are appropriately set. | | | | | |

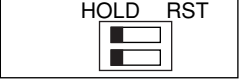
13-2 Switch setting table

(1) JW-20CM (network module)

| Set at delivery | Remote I/O | Data link (standard function) computer link | | Data link (memory capacity save function) computer link | |
|---|---|---|---|---|---------------|
| | | Master station | Slave station | | Slave station |
| MODE  0 | 1 | 2 | 2 | | 0 |
| STA.NO. X10  0 | 0 | 0 | 0 to 7 | 01 to 77 ⁽⁸⁾ | 0 to 7 |
| X1  0 | 0 | 0 | 0 to 7 | | 0 to 7 |
| LT (ON)  OFF | Turn ON both ends stations of the communication circuit. Turn OFF other stations. | | Turn ON both ends stations of the communication circuit. Turn OFF other stations. | | |
| LG (ON)  ON | Set ON/OFF shield grand | | Set ON/OFF shield grand | | |

(2) JW-20RS (remote I/O slave module)

| Set at delivery | When a ZW model I/O module is used | When a JW model I/O module is used |
|---|---|------------------------------------|
| MODE  2 | 1 | 2 |
| STA.NO. X10  0 | 0 to 7 | (01 to 77 ⁽⁸⁾) |
| X1  0 | 0 to 7 | |
| LT (ON)  OFF | Turn ON both ends stations of the communication circuit. Turn OFF other stations. | |
| LG (ON)  ON | Set ON/OFF shield grand | |

| Output holding switch | When a ZW model I/O module is used | When a JW model I/O module is used |
|---|---|------------------------------------|
|  | HOLD . . . Latch output RST . . . Output all OFF | HOLD |

13-3 Parameter memory table

(1) JW-20CM

① Remote I/O

○ : Setting is necessary (1/6)

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | | JW-PC | | ZW-PC | | |
|------------------------|--|---------------------------------|--|--|--------|-------|--------|---|
| | | | | Fix | Manual | Fix | Manual | |
| 000000 | Remote I/O operation mode | 001 ⁽⁸⁾ | (Operations when a slave station error occurs) • Remote I/O operation (communication) stops • The PC continues operation. (Mode 1) | (Communication method) Asynchronous | ○ | ○ | ○ | ○ |
| | | 002 ⁽⁸⁾ | • Only normal slave stations will continue operation (communication). • The PC continues operation. (Mode 2) | | | | | |
| | | 004 ⁽⁸⁾ | • Remote I/O operation (communication) stops • The PC continues operation. (Mode 0) | Synchronism | | | | |
| | | 005 ⁽⁸⁾ | • Remote I/O operation (communication) stops • The PC continues operation. (Mode 1) | | | | | |
| | | 006 ⁽⁸⁾ | • Only normal slave stations will continue operation (communication). • The PC continues operation. (Mode 2) | Asynchronous | | | | |
| | | 011 ⁽⁸⁾ | • Remote I/O operation (communication) stops • The PC continues operation. (Mode 1) | | | | | |
| | | 012 ⁽⁸⁾ | • Only normal slave stations will continue operation (communication). • The PC continues operation. (Mode 2) | Synchronism | | | | |
| | | 014 ⁽⁸⁾ | • Remote I/O operation (communication) stops • The PC also stops operation. (Mode 0) | | | | | |
| | | 015 ⁽⁸⁾ | • Remote I/O operation (communication) stops • The PC continues operation. (Mode 1) | | | | | |
| | | 016 ⁽⁸⁾ | • Only normal slave stations will continue operation (communication). • The PC continues operation. (Mode 2) | | | | | |
| 000001 | No. of slave station connected (1 to 63 sets) | (Decimal, bytes) | In case of 30 sets → 030 ^(D) | | | | | |

- Initial value of the address 000000, 000001⁽⁸⁾ are 00^(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | | JW-PC | | ZW-PC | |
|------------------------|---|------------------------------------|---|-----------------------|-----------------------|-----------------------|-----------------------|
| | | | | Fix | Manual | Fix | Manual |
| 000002 | <ul style="list-style-type: none"> When using the fixed allocation mode, put the top address of the remote I/O in this register. When using the manual allocation mode, put the top address of the remote I/O in the slave station 01 in this register. | (Octal, word) | When 70200, set to 000200 ⁽⁸⁾ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 000003 | | | | | | | |
| 000004 000005 | Set remote I/O top address of slave station 02 | (Octal, word) | When 70300, set to 000300 ⁽⁸⁾ | — | <input type="radio"/> | — | <input type="radio"/> |

- Use the addresses 000006 to 000177⁽⁸⁾ listed below when the manual allocation mode is selected. These addresses cannot be used in the fixed allocation mode.

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 000006, 000007 | Remote I/O top address of slave station 03 (same as 000004, 000005) |
| 000010, 000011 | 04 (same as 000004, 000005) |
| 000012, 000013 | 05 (same as 000004, 000005) |
| 000014, 000015 | 06 (same as 000004, 000005) |
| 000016, 000017 | 07 (same as 000004, 000005) |
| 000020, 000021 | 10 (same as 000004, 000005) |
| 000022, 000023 | 11 (same as 000004, 000005) |
| 000024, 000025 | 12 (same as 000004, 000005) |
| 000026, 000027 | 13 (same as 000004, 000005) |
| 000030, 000031 | 14 (same as 000004, 000005) |
| 000032, 000033 | 15 (same as 000004, 000005) |
| 000034, 000035 | 16 (same as 000004, 000005) |
| 000036, 000037 | 17 (same as 000004, 000005) |
| 000040, 000041 | 20 (same as 000004, 000005) |
| 000042, 000043 | 21 (same as 000004, 000005) |
| 000044, 000045 | 22 (same as 000004, 000005) |
| 000046, 000047 | 23 (same as 000004, 000005) |
| 000050, 000051 | 24 (same as 000004, 000005) |
| 000052, 000053 | 25 (same as 000004, 000005) |
| 000054, 000055 | 26 (same as 000004, 000005) |
| 000056, 000057 | 27 (same as 000004, 000005) |
| 000060, 000061 | 30 (same as 000004, 000005) |
| 000062, 000063 | 31 (same as 000004, 000005) |
| 000064, 000065 | 32 (same as 000004, 000005) |
| 000066, 000067 | 33 (same as 000004, 000005) |
| 000070, 000071 | 34 (same as 000004, 000005) |
| 000072, 000073 | 35 (same as 000004, 000005) |
| 000074, 000075 | 36 (same as 000004, 000005) |
| 000076, 000077 | 37 (same as 000004, 000005) |

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 000100, 000101 | Remote I/O top address of slave station 40 (same as 000004, 000005) |
| 000102, 000103 | 41 (same as 000004, 000005) |
| 000104, 000105 | 42 (same as 000004, 000005) |
| 000106, 000107 | 43 (same as 000004, 000005) |
| 000110, 000111 | 44 (same as 000004, 000005) |
| 000112, 000113 | 45 (same as 000004, 000005) |
| 000114, 000115 | 46 (same as 000004, 000005) |
| 000116, 000117 | 47 (same as 000004, 000005) |
| 000120, 000121 | 50 (same as 000004, 000005) |
| 000122, 000123 | 51 (same as 000004, 000005) |
| 000124, 000125 | 52 (same as 000004, 000005) |
| 000126, 000127 | 53 (same as 000004, 000005) |
| 000130, 000131 | 54 (same as 000004, 000005) |
| 000132, 000133 | 55 (same as 000004, 000005) |
| 000134, 000135 | 56 (same as 000004, 000005) |
| 000136, 000137 | 57 (same as 000004, 000005) |
| 000140, 000141 | 60 (same as 000004, 000005) |
| 000142, 000143 | 61 (same as 000004, 000005) |
| 000144, 000145 | 62 (same as 000004, 000005) |
| 000146, 000147 | 63 (same as 000004, 000005) |
| 000150, 000151 | 64 (same as 000004, 000005) |
| 000152, 000153 | 65 (same as 000004, 000005) |
| 000154, 000155 | 66 (same as 000004, 000005) |
| 000156, 000157 | 67 (same as 000004, 000005) |
| 000160, 000161 | 70 (same as 000004, 000005) |
| 000162, 000163 | 71 (same as 000004, 000005) |
| 000164, 000165 | 72 (same as 000004, 000005) |
| 000166, 000167 | 73 (same as 000004, 000005) |
| 000170, 000171 | 74 (same as 000004, 000005) |
| 000172, 000173 | 75 (same as 000004, 000005) |
| 000174, 000175 | 76 (same as 000004, 000005) |
| 000176, 000177 | |

- Initial value of the address 000002 to 000177⁽⁸⁾ are all 00^(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | | JW-PC | | ZW-PC | |
|------------------------|--|---------------------------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| | | | | Fix | Manual | Fix | Manual |
| 000200 | Slave station I/O points | 00 ^(H) | 64 points (8 bytes), no. of slave stations: max. 63 sets. | <input type="radio"/> | — | <input type="radio"/> | — |
| | | 01 ^(H) | 128 points (16 bytes), no. of slave stations: max. 32 sets. | — | <input type="radio"/> | — | <input type="radio"/> |
| 000201 | Number of I/O bytes of slave station 01 (1 to 128 bytes) | (Decimal, bytes) | In case of 50 bytes → 050 ^(D) | — | <input type="radio"/> | — | <input type="radio"/> |

- Use the addresses 000202 to 000277⁽⁸⁾ listed below when the manual allocation mode is selected. These addresses cannot be used in the fixed allocation mode.

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 000202 | Number of I/O bytes of slave station 02 (same as 000201) |
| 000203 | 03 (same as 000201) |
| 000204 | 04 (same as 000201) |
| 000205 | 05 (same as 000201) |
| 000206 | 06 (same as 000201) |
| 000207 | 07 (same as 000201) |
| 000210 | 10 (same as 000201) |
| 000211 | 11 (same as 000201) |
| 000212 | 12 (same as 000201) |
| 000213 | 13 (same as 000201) |
| 000214 | 14 (same as 000201) |
| 000215 | 15 (same as 000201) |
| 000216 | 16 (same as 000201) |
| 000217 | 17 (same as 000201) |
| 000220 | 20 (same as 000201) |
| 000221 | 21 (same as 000201) |
| 000222 | 22 (same as 000201) |
| 000223 | 23 (same as 000201) |
| 000224 | 24 (same as 000201) |
| 000225 | 25 (same as 000201) |
| 000226 | 26 (same as 000201) |
| 000227 | 27 (same as 000201) |
| 000230 | 30 (same as 000201) |
| 000231 | 31 (same as 000201) |
| 000232 | 32 (same as 000201) |
| 000233 | 33 (same as 000201) |
| 000234 | 34 (same as 000201) |
| 000235 | 35 (same as 000201) |
| 000236 | 36 (same as 000201) |
| 000237 | |

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 000240 | Number of I/O bytes of slave station 40 (same as 000201) |
| 000241 | 41 (same as 000201) |
| 000242 | 42 (same as 000201) |
| 000243 | 43 (same as 000201) |
| 000244 | 44 (same as 000201) |
| 000245 | 45 (same as 000201) |
| 000246 | 46 (same as 000201) |
| 000247 | 47 (same as 000201) |
| 000250 | 50 (same as 000201) |
| 000251 | 51 (same as 000201) |
| 000252 | 52 (same as 000201) |
| 000253 | 53 (same as 000201) |
| 000254 | 54 (same as 000201) |
| 000255 | 55 (same as 000201) |
| 000256 | 56 (same as 000201) |
| 000257 | 57 (same as 000201) |
| 000260 | 60 (same as 000201) |
| 000261 | 61 (same as 000201) |
| 000262 | 62 (same as 000201) |
| 000263 | 63 (same as 000201) |
| 000264 | 64 (same as 000201) |
| 000265 | 65 (same as 000201) |
| 000266 | 66 (same as 000201) |
| 000267 | 67 (same as 000201) |
| 000270 | 70 (same as 000201) |
| 000271 | 71 (same as 000201) |
| 000272 | 72 (same as 000201) |
| 000273 | 73 (same as 000201) |
| 000274 | 74 (same as 000201) |
| 000275 | 75 (same as 000201) |
| 000276 | 76 (same as 000201) |
| 000277 | |

- Initial value of the address 000200 to 000277⁽⁸⁾ are all 00^(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | | JW-PC | | ZW-PC | |
|------------------------|---|---------------------------------|---|-----------------------|--------|-----------------------|--------|
| | | | | Fix | Manual | Fix | Manual |
| 000301 | Blanks between slave stations 1 and 2 (0 to 255 bytes) | (Decimal, bytes) | In case of 100 bytes → 100 _(D) | <input type="radio"/> | — | <input type="radio"/> | — |

- Use the addresses 000302 to 000376⁽⁸⁾ listed below when the fixed allocation mode is selected. These addresses cannot be used in the manual allocation mode.

| Address ⁽⁸⁾ | Set contents |
|------------------------|---|
| 000302 | Blanks between slave stations 2 and 3 (same as 000301) |
| 000303 | 3 and 4 (same as 000301) |
| 000304 | 4 and 5 (same as 000301) |
| 000305 | 5 and 6 (same as 000301) |
| 000306 | 6 and 7 (same as 000301) |
| 000307 | 7 and 10 (same as 000301) |
| 000310 | 10 and 11 (same as 000301) |
| 000311 | 11 and 12 (same as 000301) |
| 000312 | 12 and 13 (same as 000301) |
| 000313 | 13 and 14 (same as 000301) |
| 000314 | 14 and 15 (same as 000301) |
| 000315 | 15 and 16 (same as 000301) |
| 000316 | 16 and 17 (same as 000301) |
| 000317 | 17 and 20 (same as 000301) |
| 000320 | 20 and 21 (same as 000301) |
| 000321 | 21 and 22 (same as 000301) |
| 000322 | 22 and 23 (same as 000301) |
| 000323 | 23 and 24 (same as 000301) |
| 000324 | 24 and 25 (same as 000301) |
| 000325 | 25 and 26 (same as 000301) |
| 000326 | 26 and 27 (same as 000301) |
| 000327 | 27 and 30 (same as 000301) |
| 000330 | 30 and 31 (same as 000301) |
| 000331 | 31 and 32 (same as 000301) |
| 000332 | 32 and 33 (same as 000301) |
| 000333 | 33 and 34 (same as 000301) |
| 000334 | 34 and 35 (same as 000301) |
| 000335 | 35 and 36 (same as 000301) |
| 000336 | 36 and 37 (same as 000301) |
| 000337 | 37 and 40 (same as 000301) |
| 000340 | 40 and 41 (same as 000301) |

| Address ⁽⁸⁾ | Set contents |
|------------------------|---|
| 000341 | Blanks between slave stations 41 and 42 (same as 000301) |
| 000342 | 42 and 43 (same as 000301) |
| 000343 | 43 and 44 (same as 000301) |
| 000344 | 44 and 45 (same as 000301) |
| 000345 | 45 and 46 (same as 000301) |
| 000346 | 46 and 47 (same as 000301) |
| 000347 | 47 and 50 (same as 000301) |
| 000350 | 50 and 51 (same as 000301) |
| 000351 | 51 and 52 (same as 000301) |
| 000352 | 52 and 53 (same as 000301) |
| 000353 | 53 and 54 (same as 000301) |
| 000354 | 54 and 55 (same as 000301) |
| 000355 | 55 and 56 (same as 000301) |
| 000356 | 56 and 57 (same as 000301) |
| 000357 | 57 and 60 (same as 000301) |
| 000360 | 60 and 61 (same as 000301) |
| 000361 | 61 and 62 (same as 000301) |
| 000362 | 62 and 63 (same as 000301) |
| 000363 | 63 and 64 (same as 000301) |
| 000364 | 64 and 65 (same as 000301) |
| 000365 | 65 and 66 (same as 000301) |
| 000366 | 66 and 67 (same as 000301) |
| 000367 | 67 and 70 (same as 000301) |
| 000370 | 70 and 71 (same as 000301) |
| 000371 | 71 and 72 (same as 000301) |
| 000372 | 72 and 73 (same as 000301) |
| 000373 | 73 and 74 (same as 000301) |
| 000374 | 74 and 75 (same as 000301) |
| 000375 | 75 and 76 (same as 000301) |
| 000376 | 76 and 77 (same as 000301) |

- Initial value of the address 000301 to 000376⁽⁸⁾ are all 00_(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | | | | | | | | | | JW-PC | | ZW-PC | | |
|------------------------|--|---------------------------------|--|----|----|----|----|----|----|----|---|-------|--------|-------|--------|--|
| | | | | | | | | | | | | Fix | Manual | Fix | Manual | |
| 000400 to 000407 | Slave station I/O type • Use 0 (OFF, for ZW models) or 1 (ON, for JW models) in the corresponding bits for each station number listed on the right. | Bit address | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | | | | |
| | | 000400 | 07 | 06 | 05 | 04 | 03 | 02 | 01 | — | • When the slave station 01 to 04 ⁽⁸⁾ I/Os are ZW models and slave station 05 to 77 ⁽⁸⁾ I/Os are JW models. | | | | | |
| | | 000401 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | (Address) (Bit pattern) | | | | | |
| | | 000402 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 000400 — 11100000 | | | | | |
| | | 000403 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 000401 — 11111111 | | | | | |
| | | 000404 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | to to | | | | | |
| | | 000405 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 000407 — 11111111 | | | | | |
| | | 000406 | 67 | 66 | 65 | 64 | 63 | 62 | 61 | 60 | ○ | ○ | — | — | | |
| | | 000407 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 | | | | | | |
| 000600 to 000603 | Data register address of special I/O module (No. 1) | 000600 | Slave station number (00 to 77 ⁽⁸⁾) | | | | | | | | | | | | | |
| | | 000601 | Upper 4 bits: rack number (0, 1) Lower 4 bits: slot number (00 to 0F ^(H)) | | | | | | | | | | | | | |
| | | 000602 | Number of data bytes (01 to 64 ^(D)) | | | | | | | | | | | | | |
| | | 000603 | Register top address (file address) D7 bit: 1 (Set), 0 (Not set) | | | | | | | | | | | | | |

- Set the addresses 000600 to 000777⁽⁸⁾ when the master station PC is JW model and uses a special I/O module for slave station.

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 000604 to 000607 | Data register address of special I/O (No. 2) (same as 000600 to 000603) |
| 000610 to 000613 | (same as 000600 to 000603) (No. 3) |
| 000614 to 000617 | (same as 000600 to 000603) (No. 4) |
| 000620 to 000623 | (same as 000600 to 000603) (No. 5) |
| 000624 to 000627 | (same as 000600 to 000603) (No. 6) |
| 000630 to 000633 | (same as 000600 to 000603) (No. 7) |
| 000634 to 000637 | (same as 000600 to 000603) (No. 8) |
| 000640 to 000643 | (same as 000600 to 000603) (No. 9) |
| 000644 to 000647 | (same as 000600 to 000603) (No.10) |
| 000650 to 000653 | (same as 000600 to 000603) (No.11) |
| 000654 to 000657 | (same as 000600 to 000603) (No.12) |
| 000660 to 000663 | (same as 000600 to 000603) (No.13) |
| 000664 to 000667 | (same as 000600 to 000603) (No.14) |
| 000670 to 000673 | (same as 000600 to 000603) (No.15) |
| 000674 to 000677 | (same as 000600 to 000603) (No.16) |
| 000700 to 000703 | (same as 000600 to 000603) (No.17) |

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 000704 to 000707 | Data register address of special I/O (No.18) (same as 000600 to 000603) |
| 000710 to 000713 | (same as 000600 to 000603) (No.19) |
| 000714 to 000717 | (same as 000600 to 000603) (No.20) |
| 000720 to 000723 | (same as 000600 to 000603) (No.21) |
| 000724 to 000727 | (same as 000600 to 000603) (No.22) |
| 000730 to 000733 | (same as 000600 to 000603) (No.23) |
| 000734 to 000737 | (same as 000600 to 000603) (No.24) |
| 000740 to 000743 | (same as 000600 to 000603) (No.25) |
| 000744 to 000747 | (same as 000600 to 000603) (No.26) |
| 000750 to 000753 | (same as 000600 to 000603) (No.27) |
| 000754 to 000757 | (same as 000600 to 000603) (No.28) |
| 000760 to 000763 | (same as 000600 to 000603) (No.29) |
| 000764 to 000767 | (same as 000600 to 000603) (No.30) |
| 000770 to 000773 | (same as 000600 to 000603) (No.31) |
| 000774 to 000777 | (same as 000600 to 000603) (No.32) |

- Initial value of the address 000400 to 000407⁽⁸⁾ are all FF^(H). Initial value of 000600 to 000777⁽⁸⁾ are all 00^(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | | JW-PC | | ZW-PC | | |
|------------------------|--|---------------------------------|--------------------|---|--------|-------|--------|---|
| | | | | Fix | Manual | Fix | Manual | |
| 003764 to 003767 | Flag top address | 003764 | (Octal, word) | When $\exists 0200$, set to 000200 ⁽⁸⁾ (Set by file address) When file No. 2, set to 02 ^(H) <input type="checkbox"/> 00 ^(H) : Do not output flag <input type="checkbox"/> 80 ^(H) : Output flag | | | | |
| | | 003765 | | | | | | |
| | | 003766 | (Hexadecimal byte) | | | | | |
| | | 003767 | ● | | | | | |
| 003777 | Stop operation of the remote I/O | 00 ^(H) | ————— | | ○ | ○ | — | — |
| | Start operation of the remote I/O | 01 ^(H) | | | | | | |
| | Writing to EEPROM or operation of the module/stop operation | 80 ^(H) | | | | | | |
| | Writing to EEPROM or operation of the module/start operation | 81 ^(H) | | | | | | |
| | Initialize parameter setting value | 08 ^(H) | | | | | | |

- Initial value of the address 003764 to 003767⁽⁸⁾ are all 00^(H). Initial value of 003777⁽⁸⁾ are all 01^(H).

② Data link master station

(1/7)

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | |
|------------------------|--|---------------------------------|--|
| 000000 | Store the mis-setting slave station number in the master station | — | — |
| 004000 | Top address of relay link area in the master station | (Octal, word) | When \neq 1000, set to 001000 ⁽⁸⁾ (Set by file address) |
| 004001 | | | |
| 004002 | Set function (relay/register link) | 01 ^(H) | Fixed to 01 ^(H) |
| 004003 | Amount of connectable stations (2 to 64 stations) | (Decimal, byte) | When 12 stations, set to 012 ^(D) |
| 004004 to 004007 | <ul style="list-style-type: none"> When slave station 01⁽⁸⁾ is set to data link (the standard function), top address of the relay link area on slave station 01⁽⁸⁾ are as shown at right. | 004004 | When \neq 1200, set to 001200 ⁽⁸⁾ (Set by file address) ※ 00 ^(H) : In this case the same as the master station 80 ^(H) : In this case different from the master station |
| | | 004005 | |
| | | 004006 | |
| | | 004007 | |
| 004004 to 004007 | <ul style="list-style-type: none"> When slave station 01⁽⁸⁾ is set to data link (the memory capacity save function), number of offset bytes of relay link area on slave station 01⁽⁸⁾ are shown at right. | 004004 | When 100 bytes, set to 00100 ^(D) |
| | | 004005 | |
| | | 004006 | |
| | | 004007 | |

※ When 00^(H) is set, the value becomes the same top address of the master station regardless of the setting value of 004004 to 004005⁽⁸⁾.

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 004010 to 004013 | Top address or number of offset bytes on slave station 02 ⁽⁸⁾ (same as 004004 to 004007). |
| 004014 to 004017 | 03 ⁽⁸⁾ (same as 004004 to 004007) |
| 004020 to 004023 | 04 ⁽⁸⁾ (same as 004004 to 004007) |
| 004024 to 004027 | 05 ⁽⁸⁾ (same as 004004 to 004007) |
| 004030 to 004033 | 06 ⁽⁸⁾ (same as 004004 to 004007) |
| 004034 to 004037 | 07 ⁽⁸⁾ (same as 004004 to 004007) |
| 004040 to 004043 | 10 ⁽⁸⁾ (same as 004004 to 004007) |
| 004044 to 004047 | 11 ⁽⁸⁾ (same as 004004 to 004007) |
| 004050 to 004053 | 12 ⁽⁸⁾ (same as 004004 to 004007) |
| 004054 to 004057 | 13 ⁽⁸⁾ (same as 004004 to 004007) |
| 004060 to 004063 | 14 ⁽⁸⁾ (same as 004004 to 004007) |
| 004064 to 004067 | 15 ⁽⁸⁾ (same as 004004 to 004007) |
| 004070 to 004073 | 16 ⁽⁸⁾ (same as 004004 to 004007) |
| 004074 to 004077 | 17 ⁽⁸⁾ (same as 004004 to 004007) |
| 004100 to 004103 | 20 ⁽⁸⁾ (same as 004004 to 004007) |
| 004104 to 004107 | 21 ⁽⁸⁾ (same as 004004 to 004007) |
| 004110 to 004113 | 22 ⁽⁸⁾ (same as 004004 to 004007) |
| 004114 to 004117 | 23 ⁽⁸⁾ (same as 004004 to 004007) |
| 004120 to 004123 | 24 ⁽⁸⁾ (same as 004004 to 004007) |
| 004124 to 004127 | 25 ⁽⁸⁾ (same as 004004 to 004007) |
| 004130 to 004133 | 26 ⁽⁸⁾ (same as 004004 to 004007) |
| 004134 to 004137 | 27 ⁽⁸⁾ (same as 004004 to 004007) |
| 004140 to 004143 | 30 ⁽⁸⁾ (same as 004004 to 004007) |
| 004144 to 004147 | 31 ⁽⁸⁾ (same as 004004 to 004007) |
| 004150 to 004153 | 32 ⁽⁸⁾ (same as 004004 to 004007) |
| 004154 to 004157 | 33 ⁽⁸⁾ (same as 004004 to 004007) |
| 004160 to 004163 | 34 ⁽⁸⁾ (same as 004004 to 004007) |
| 004164 to 004167 | 35 ⁽⁸⁾ (same as 004004 to 004007) |
| 004170 to 004173 | 36 ⁽⁸⁾ (same as 004004 to 004007) |
| 004174 to 004177 | 37 ⁽⁸⁾ (same as 004004 to 004007) |

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 004200 to 004203 | Top address or number of offset bytes on slave station 40 ⁽⁸⁾ (same as 004004 to 004007). |
| 004204 to 004207 | 41 ⁽⁸⁾ (same as 004004 to 004007) |
| 004210 to 004213 | 42 ⁽⁸⁾ (same as 004004 to 004007) |
| 004214 to 004217 | 43 ⁽⁸⁾ (same as 004004 to 004007) |
| 004220 to 004223 | 44 ⁽⁸⁾ (same as 004004 to 004007) |
| 004224 to 004227 | 45 ⁽⁸⁾ (same as 004004 to 004007) |
| 004230 to 004233 | 46 ⁽⁸⁾ (same as 004004 to 004007) |
| 004234 to 004237 | 47 ⁽⁸⁾ (same as 004004 to 004007) |
| 004240 to 004243 | 50 ⁽⁸⁾ (same as 004004 to 004007) |
| 004244 to 004247 | 51 ⁽⁸⁾ (same as 004004 to 004007) |
| 004250 to 004253 | 52 ⁽⁸⁾ (same as 004004 to 004007) |
| 004254 to 004257 | 53 ⁽⁸⁾ (same as 004004 to 004007) |
| 004260 to 004263 | 54 ⁽⁸⁾ (same as 004004 to 004007) |
| 004264 to 004267 | 55 ⁽⁸⁾ (same as 004004 to 004007) |
| 004270 to 004273 | 56 ⁽⁸⁾ (same as 004004 to 004007) |
| 004274 to 004277 | 57 ⁽⁸⁾ (same as 004004 to 004007) |
| 004300 to 004303 | 60 ⁽⁸⁾ (same as 004004 to 004007) |
| 004304 to 004307 | 61 ⁽⁸⁾ (same as 004004 to 004007) |
| 004310 to 004313 | 62 ⁽⁸⁾ (same as 004004 to 004007) |
| 004314 to 004317 | 63 ⁽⁸⁾ (same as 004004 to 004007) |
| 004320 to 004323 | 64 ⁽⁸⁾ (same as 004004 to 004007) |
| 004324 to 004327 | 65 ⁽⁸⁾ (same as 004004 to 004007) |
| 004330 to 004333 | 66 ⁽⁸⁾ (same as 004004 to 004007) |
| 004334 to 004337 | 67 ⁽⁸⁾ (same as 004004 to 004007) |
| 004340 to 004343 | 70 ⁽⁸⁾ (same as 004004 to 004007) |
| 004344 to 004347 | 71 ⁽⁸⁾ (same as 004004 to 004007) |
| 004350 to 004353 | 72 ⁽⁸⁾ (same as 004004 to 004007) |
| 004354 to 004357 | 73 ⁽⁸⁾ (same as 004004 to 004007) |
| 004360 to 004363 | 74 ⁽⁸⁾ (same as 004004 to 004007) |
| 004364 to 004367 | 75 ⁽⁸⁾ (same as 004004 to 004007) |
| 004370 to 004373 | 76 ⁽⁸⁾ (same as 004004 to 004007) |
| 004374 to 004377 | 77 ⁽⁸⁾ (same as 004004 to 004007) |

• Initial value of the address 004000 to 004377⁽⁸⁾ are all 00^(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) |
|------------------------|---|---------------------------------|
| 004400 | Top address of register link area in the master station | (Octal, word) |
| 004401 | | (Hexadecimal, byte) |
| 004402 | | |
| 004403 | | 00 ^(H) |
| 004404 to 004407 | • When slave station 01 ⁽⁸⁾ is set to data link (the standard function), top address of the register link area on slave station 01 ⁽⁸⁾ are as shown at right. | 004404 (Octal, word) |
| | | 004405 (Hexadecimal, byte) |
| | | 004406 |
| | | 004407 |
| 004407 | • When slave station 01 ⁽⁸⁾ is set to data link (the memory capacity save function), number of offset bytes of register link area on slave station 01 ⁽⁸⁾ are shown at right. | 004404 (Decimal, word) |
| | | 004405 |
| | | 004406 |
| | | 004407 |

When 09000⁽⁸⁾, set to 004000⁽⁸⁾
(Set by file address)

When 29000, set to 006000⁽⁸⁾
(Set by file address)

※ 00^(H): In this case the same as the master station
80^(H): In this case different from the master station

When 100 bytes, set to 00100^(D)

※ When 00^(H) is set, the value becomes the same top address of the master station regardless of the setting value of 004404 to 004405⁽⁸⁾.

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 004410 to 004413 | Top address or number of offset bytes on slave station 02 ⁽⁸⁾ (same as 004404 to 004407). |
| 004414 to 004417 | 03 ⁽⁸⁾ (same as 004404 to 004407) |
| 004420 to 004423 | 04 ⁽⁸⁾ (same as 004404 to 004407) |
| 004424 to 004427 | 05 ⁽⁸⁾ (same as 004404 to 004407) |
| 004430 to 004433 | 06 ⁽⁸⁾ (same as 004404 to 004407) |
| 004434 to 004437 | 07 ⁽⁸⁾ (same as 004404 to 004407) |
| 004440 to 004443 | 10 ⁽⁸⁾ (same as 004404 to 004407) |
| 004444 to 004447 | 11 ⁽⁸⁾ (same as 004404 to 004407) |
| 004450 to 004453 | 12 ⁽⁸⁾ (same as 004404 to 004407) |
| 004454 to 004457 | 13 ⁽⁸⁾ (same as 004404 to 004407) |
| 004460 to 004463 | 14 ⁽⁸⁾ (same as 004404 to 004407) |
| 004464 to 004467 | 15 ⁽⁸⁾ (same as 004404 to 004407) |
| 004470 to 004473 | 16 ⁽⁸⁾ (same as 004404 to 004407) |
| 004474 to 004477 | 17 ⁽⁸⁾ (same as 004404 to 004407) |
| 004500 to 004503 | 20 ⁽⁸⁾ (same as 004404 to 004407) |
| 004504 to 004507 | 21 ⁽⁸⁾ (same as 004404 to 004407) |
| 004510 to 004513 | 22 ⁽⁸⁾ (same as 004404 to 004407) |
| 004514 to 004517 | 23 ⁽⁸⁾ (same as 004404 to 004407) |
| 004520 to 004523 | 24 ⁽⁸⁾ (same as 004404 to 004407) |
| 004524 to 004527 | 25 ⁽⁸⁾ (same as 004404 to 004407) |
| 004530 to 004533 | 26 ⁽⁸⁾ (same as 004404 to 004407) |
| 004534 to 004537 | 27 ⁽⁸⁾ (same as 004404 to 004407) |
| 004540 to 004543 | 30 ⁽⁸⁾ (same as 004404 to 004407) |
| 004544 to 004547 | 31 ⁽⁸⁾ (same as 004404 to 004407) |
| 004550 to 004553 | 32 ⁽⁸⁾ (same as 004404 to 004407) |
| 004554 to 004557 | 33 ⁽⁸⁾ (same as 004404 to 004407) |
| 004560 to 004563 | 34 ⁽⁸⁾ (same as 004404 to 004407) |
| 004564 to 004567 | 35 ⁽⁸⁾ (same as 004404 to 004407) |
| 004570 to 004573 | 36 ⁽⁸⁾ (same as 004404 to 004407) |
| 004574 to 004577 | 37 ⁽⁸⁾ (same as 004404 to 004407) |

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 004600 to 004603 | Top address or number of offset bytes on slave station 40 ⁽⁸⁾ (same as 004404 to 004407). |
| 004604 to 004607 | 41 ⁽⁸⁾ (same as 004404 to 004407) |
| 004610 to 004613 | 42 ⁽⁸⁾ (same as 004404 to 004407) |
| 004614 to 004617 | 43 ⁽⁸⁾ (same as 004404 to 004407) |
| 004620 to 004623 | 44 ⁽⁸⁾ (same as 004404 to 004407) |
| 004624 to 004627 | 45 ⁽⁸⁾ (same as 004404 to 004407) |
| 004630 to 004633 | 46 ⁽⁸⁾ (same as 004404 to 004407) |
| 004634 to 004637 | 47 ⁽⁸⁾ (same as 004404 to 004407) |
| 004640 to 004643 | 50 ⁽⁸⁾ (same as 004404 to 004407) |
| 004644 to 004647 | 51 ⁽⁸⁾ (same as 004404 to 004407) |
| 004650 to 004653 | 52 ⁽⁸⁾ (same as 004404 to 004407) |
| 004654 to 004657 | 53 ⁽⁸⁾ (same as 004404 to 004407) |
| 004660 to 004663 | 54 ⁽⁸⁾ (same as 004404 to 004407) |
| 004664 to 004667 | 55 ⁽⁸⁾ (same as 004404 to 004407) |
| 004670 to 004673 | 56 ⁽⁸⁾ (same as 004404 to 004407) |
| 004674 to 004677 | 57 ⁽⁸⁾ (same as 004404 to 004407) |
| 004700 to 004703 | 60 ⁽⁸⁾ (same as 004404 to 004407) |
| 004704 to 004707 | 61 ⁽⁸⁾ (same as 004404 to 004407) |
| 004710 to 004713 | 62 ⁽⁸⁾ (same as 004404 to 004407) |
| 004714 to 004717 | 63 ⁽⁸⁾ (same as 004404 to 004407) |
| 004720 to 004723 | 64 ⁽⁸⁾ (same as 004404 to 004407) |
| 004724 to 004727 | 65 ⁽⁸⁾ (same as 004404 to 004407) |
| 004730 to 004733 | 66 ⁽⁸⁾ (same as 004404 to 004407) |
| 004734 to 004737 | 67 ⁽⁸⁾ (same as 004404 to 004407) |
| 004740 to 004743 | 70 ⁽⁸⁾ (same as 004404 to 004407) |
| 004744 to 004747 | 71 ⁽⁸⁾ (same as 004404 to 004407) |
| 004750 to 004753 | 72 ⁽⁸⁾ (same as 004404 to 004407) |
| 004754 to 004757 | 73 ⁽⁸⁾ (same as 004404 to 004407) |
| 004760 to 004763 | 74 ⁽⁸⁾ (same as 004404 to 004407) |
| 004764 to 004767 | 75 ⁽⁸⁾ (same as 004404 to 004407) |
| 004770 to 004773 | 76 ⁽⁸⁾ (same as 004404 to 004407) |
| 004774 to 004777 | 77 ⁽⁸⁾ (same as 004404 to 004407) |

• Initial value of the address 004400 to 004777⁽⁸⁾ are all 00^(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | |
|------------------------|--|---------------------------------|---|
| 005000 | Number of sending bytes of master station relay link area | (Decimal, word) | When 8 bytes, set to 00008 ^(D) |
| 005001 | | | |
| 005002 | Number of sending bytes of slave station 01 ⁽⁸⁾ relay link area | (Decimal, word) | |
| 005003 | | | |

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 005004 to 005005 | Number of sending bytes of slave station 02 ⁽⁸⁾ relay link area (same as 005002 to 005003). |
| 005006 to 005007 | 03 ⁽⁸⁾ (same as 005002 to 005003) |
| 005010 to 005011 | 04 ⁽⁸⁾ (same as 005002 to 005003) |
| 005012 to 005013 | 05 ⁽⁸⁾ (same as 005002 to 005003) |
| 005014 to 005015 | 06 ⁽⁸⁾ (same as 005002 to 005003) |
| 005016 to 005017 | 07 ⁽⁸⁾ (same as 005002 to 005003) |
| 005020 to 005021 | 10 ⁽⁸⁾ (same as 005002 to 005003) |
| 005022 to 005023 | 11 ⁽⁸⁾ (same as 005002 to 005003) |
| 005024 to 005025 | 12 ⁽⁸⁾ (same as 005002 to 005003) |
| 005026 to 005027 | 13 ⁽⁸⁾ (same as 005002 to 005003) |
| 005030 to 005031 | 14 ⁽⁸⁾ (same as 005002 to 005003) |
| 005032 to 005033 | 15 ⁽⁸⁾ (same as 005002 to 005003) |
| 005034 to 005035 | 16 ⁽⁸⁾ (same as 005002 to 005003) |
| 005036 to 005037 | 17 ⁽⁸⁾ (same as 005002 to 005003) |
| 005040 to 005041 | 20 ⁽⁸⁾ (same as 005002 to 005003) |
| 005042 to 005043 | 21 ⁽⁸⁾ (same as 005002 to 005003) |
| 005044 to 005045 | 22 ⁽⁸⁾ (same as 005002 to 005003) |
| 005046 to 005047 | 23 ⁽⁸⁾ (same as 005002 to 005003) |
| 005050 to 005051 | 24 ⁽⁸⁾ (same as 005002 to 005003) |
| 005052 to 005053 | 25 ⁽⁸⁾ (same as 005002 to 005003) |
| 005054 to 005055 | 26 ⁽⁸⁾ (same as 005002 to 005003) |
| 005056 to 005057 | 27 ⁽⁸⁾ (same as 005002 to 005003) |
| 005060 to 005061 | 30 ⁽⁸⁾ (same as 005002 to 005003) |
| 005062 to 005063 | 31 ⁽⁸⁾ (same as 005002 to 005003) |
| 005064 to 005065 | 32 ⁽⁸⁾ (same as 005002 to 005003) |
| 005066 to 005067 | 33 ⁽⁸⁾ (same as 005002 to 005003) |
| 005070 to 005071 | 34 ⁽⁸⁾ (same as 005002 to 005003) |
| 005072 to 005073 | 35 ⁽⁸⁾ (same as 005002 to 005003) |
| 005074 to 005075 | 36 ⁽⁸⁾ (same as 005002 to 005003) |
| 005076 to 005077 | 37 ⁽⁸⁾ (same as 005002 to 005003) |

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 005100 to 005101 | Number of sending bytes of slave station 40 ⁽⁸⁾ relay link area (same as 005002 to 005003). |
| 005102 to 005103 | 41 ⁽⁸⁾ (same as 005002 to 005003) |
| 005104 to 005105 | 42 ⁽⁸⁾ (same as 005002 to 005003) |
| 005106 to 005107 | 43 ⁽⁸⁾ (same as 005002 to 005003) |
| 005110 to 005111 | 44 ⁽⁸⁾ (same as 005002 to 005003) |
| 005112 to 005113 | 45 ⁽⁸⁾ (same as 005002 to 005003) |
| 005114 to 005115 | 46 ⁽⁸⁾ (same as 005002 to 005003) |
| 005116 to 005117 | 47 ⁽⁸⁾ (same as 005002 to 005003) |
| 005120 to 005121 | 50 ⁽⁸⁾ (same as 005002 to 005003) |
| 005122 to 005123 | 51 ⁽⁸⁾ (same as 005002 to 005003) |
| 005124 to 005125 | 52 ⁽⁸⁾ (same as 005002 to 005003) |
| 005126 to 005127 | 53 ⁽⁸⁾ (same as 005002 to 005003) |
| 005130 to 005131 | 54 ⁽⁸⁾ (same as 005002 to 005003) |
| 005132 to 005133 | 55 ⁽⁸⁾ (same as 005002 to 005003) |
| 005134 to 005135 | 56 ⁽⁸⁾ (same as 005002 to 005003) |
| 005136 to 005137 | 57 ⁽⁸⁾ (same as 005002 to 005003) |
| 005140 to 005141 | 60 ⁽⁸⁾ (same as 005002 to 005003) |
| 005142 to 005143 | 61 ⁽⁸⁾ (same as 005002 to 005003) |
| 005144 to 005145 | 62 ⁽⁸⁾ (same as 005002 to 005003) |
| 005146 to 005147 | 63 ⁽⁸⁾ (same as 005002 to 005003) |
| 005150 to 005151 | 64 ⁽⁸⁾ (same as 005002 to 005003) |
| 005152 to 005153 | 65 ⁽⁸⁾ (same as 005002 to 005003) |
| 005154 to 005155 | 66 ⁽⁸⁾ (same as 005002 to 005003) |
| 005156 to 005157 | 67 ⁽⁸⁾ (same as 005002 to 005003) |
| 005160 to 005161 | 70 ⁽⁸⁾ (same as 005002 to 005003) |
| 005162 to 005163 | 71 ⁽⁸⁾ (same as 005002 to 005003) |
| 005164 to 005165 | 72 ⁽⁸⁾ (same as 005002 to 005003) |
| 005166 to 005167 | 73 ⁽⁸⁾ (same as 005002 to 005003) |
| 005170 to 005171 | 74 ⁽⁸⁾ (same as 005002 to 005003) |
| 005172 to 005173 | 75 ⁽⁸⁾ (same as 005002 to 005003) |
| 005174 to 005175 | 76 ⁽⁸⁾ (same as 005002 to 005003) |
| 005176 to 005177 | 77 ⁽⁸⁾ (same as 005002 to 005003) |

- Initial value of the address 005000 to 005177⁽⁸⁾ are all 00^(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | |
|------------------------|---|---------------------------------|--|
| 005200 | Number of sending bytes of master station register link area | (Decimal, word) | When 64 bytes, set to 00064 _(D) |
| 005201 | | | |
| 005202 | Number of sending bytes of slave station 01 ⁽⁸⁾ register link area | (Decimal, word) | |
| 005203 | | | |

| Address ⁽⁸⁾ | Set contents |
|------------------------|---|
| 005204 to 005205 | Number of sending bytes of slave station 02 ⁽⁸⁾ register link area (same as 005202 to 005203). |
| 005206 to 005207 | 03 ⁽⁸⁾ (same as 005202 to 005203) |
| 005210 to 005211 | 04 ⁽⁸⁾ (same as 005202 to 005203) |
| 005212 to 005213 | 05 ⁽⁸⁾ (same as 005202 to 005203) |
| 005214 to 005215 | 06 ⁽⁸⁾ (same as 005202 to 005203) |
| 005216 to 005217 | 07 ⁽⁸⁾ (same as 005202 to 005203) |
| 005220 to 005221 | 10 ⁽⁸⁾ (same as 005202 to 005203) |
| 005222 to 005223 | 11 ⁽⁸⁾ (same as 005202 to 005203) |
| 005224 to 005225 | 12 ⁽⁸⁾ (same as 005202 to 005203) |
| 005226 to 005227 | 13 ⁽⁸⁾ (same as 005202 to 005203) |
| 005230 to 005231 | 14 ⁽⁸⁾ (same as 005202 to 005203) |
| 005232 to 005233 | 15 ⁽⁸⁾ (same as 005202 to 005203) |
| 005234 to 005235 | 16 ⁽⁸⁾ (same as 005202 to 005203) |
| 005236 to 005237 | 17 ⁽⁸⁾ (same as 005202 to 005203) |
| 005240 to 005241 | 20 ⁽⁸⁾ (same as 005202 to 005203) |
| 005242 to 005243 | 21 ⁽⁸⁾ (same as 005202 to 005203) |
| 005244 to 005245 | 22 ⁽⁸⁾ (same as 005202 to 005203) |
| 005246 to 005247 | 23 ⁽⁸⁾ (same as 005202 to 005203) |
| 005250 to 005251 | 24 ⁽⁸⁾ (same as 005202 to 005203) |
| 005252 to 005253 | 25 ⁽⁸⁾ (same as 005202 to 005203) |
| 005254 to 005255 | 26 ⁽⁸⁾ (same as 005202 to 005203) |
| 005256 to 005257 | 27 ⁽⁸⁾ (same as 005202 to 005203) |
| 005260 to 005261 | 30 ⁽⁸⁾ (same as 005202 to 005203) |
| 005262 to 005263 | 31 ⁽⁸⁾ (same as 005202 to 005203) |
| 005264 to 005265 | 32 ⁽⁸⁾ (same as 005202 to 005203) |
| 005266 to 005267 | 33 ⁽⁸⁾ (same as 005202 to 005203) |
| 005270 to 005271 | 34 ⁽⁸⁾ (same as 005202 to 005203) |
| 005272 to 005273 | 35 ⁽⁸⁾ (same as 005202 to 005203) |
| 005274 to 005275 | 36 ⁽⁸⁾ (same as 005202 to 005203) |
| 005276 to 005277 | 37 ⁽⁸⁾ (same as 005202 to 005203) |

| Address ⁽⁸⁾ | Set contents |
|------------------------|---|
| 005300 to 005301 | Number of sending bytes of slave station 40 ⁽⁸⁾ register link area (same as 005202 to 005203). |
| 005302 to 005303 | 41 ⁽⁸⁾ (same as 005202 to 005203) |
| 005304 to 005305 | 42 ⁽⁸⁾ (same as 005202 to 005203) |
| 005306 to 005307 | 43 ⁽⁸⁾ (same as 005202 to 005203) |
| 005310 to 005311 | 44 ⁽⁸⁾ (same as 005202 to 005203) |
| 005312 to 005313 | 45 ⁽⁸⁾ (same as 005202 to 005203) |
| 005314 to 005315 | 46 ⁽⁸⁾ (same as 005202 to 005203) |
| 005316 to 005317 | 47 ⁽⁸⁾ (same as 005202 to 005203) |
| 005320 to 005321 | 50 ⁽⁸⁾ (same as 005202 to 005203) |
| 005322 to 005323 | 51 ⁽⁸⁾ (same as 005202 to 005203) |
| 005324 to 005325 | 52 ⁽⁸⁾ (same as 005202 to 005203) |
| 005326 to 005327 | 53 ⁽⁸⁾ (same as 005202 to 005203) |
| 005330 to 005331 | 54 ⁽⁸⁾ (same as 005202 to 005203) |
| 005332 to 005333 | 55 ⁽⁸⁾ (same as 005202 to 005203) |
| 005334 to 005335 | 56 ⁽⁸⁾ (same as 005202 to 005203) |
| 005336 to 005337 | 57 ⁽⁸⁾ (same as 005202 to 005203) |
| 005340 to 005341 | 60 ⁽⁸⁾ (same as 005202 to 005203) |
| 005342 to 005343 | 61 ⁽⁸⁾ (same as 005202 to 005203) |
| 005344 to 005345 | 62 ⁽⁸⁾ (same as 005202 to 005203) |
| 005346 to 005347 | 63 ⁽⁸⁾ (same as 005202 to 005203) |
| 005350 to 005351 | 64 ⁽⁸⁾ (same as 005202 to 005203) |
| 005352 to 005353 | 65 ⁽⁸⁾ (same as 005202 to 005203) |
| 005354 to 005355 | 66 ⁽⁸⁾ (same as 005202 to 005203) |
| 005356 to 005357 | 67 ⁽⁸⁾ (same as 005202 to 005203) |
| 005360 to 005361 | 70 ⁽⁸⁾ (same as 005202 to 005203) |
| 005362 to 005363 | 71 ⁽⁸⁾ (same as 005202 to 005203) |
| 005364 to 005365 | 72 ⁽⁸⁾ (same as 005202 to 005203) |
| 005366 to 005367 | 73 ⁽⁸⁾ (same as 005202 to 005203) |
| 005370 to 005371 | 74 ⁽⁸⁾ (same as 005202 to 005203) |
| 005372 to 005373 | 75 ⁽⁸⁾ (same as 005202 to 005203) |
| 005374 to 005375 | 76 ⁽⁸⁾ (same as 005202 to 005203) |
| 005376 to 005377 | 77 ⁽⁸⁾ (same as 005202 to 005203) |

- Initial value of the address 005200 to 005377⁽⁸⁾ are all 00^(H).

Set addresses 007501 to 007577₍₈₎ when a JW model is used. The setting is not required when a ZW model is used. (5/7)

| Address ₍₈₎ | Set contents | Setting method (value, example) | |
|------------------------|---|---------------------------------|---|
| 007501 | Time out time of SEND/RECEIVE instruction of slave station 01 ₍₈₎ (0.1 to 25.5 sec.) | (Decimal, byte) | When 10 second, set to 100 _(D) |

| Address ₍₈₎ | Set contents |
|------------------------|--|
| 007502 | Time out time of SEND/RECEIVE instruction of slave station 02 ₍₈₎ (Same as 007501) |
| 007503 | 03 ₍₈₎ (same as 007501) |
| 007504 | 04 ₍₈₎ (same as 007501) |
| 007505 | 05 ₍₈₎ (same as 007501) |
| 007506 | 06 ₍₈₎ (same as 007501) |
| 007507 | 07 ₍₈₎ (same as 007501) |
| 007510 | 10 ₍₈₎ (same as 007501) |
| 007511 | 11 ₍₈₎ (same as 007501) |
| 007512 | 12 ₍₈₎ (same as 007501) |
| 007513 | 13 ₍₈₎ (same as 007501) |
| 007514 | 14 ₍₈₎ (same as 007501) |
| 007515 | 15 ₍₈₎ (same as 007501) |
| 007516 | 16 ₍₈₎ (same as 007501) |
| 007517 | 17 ₍₈₎ (same as 007501) |
| 007520 | 20 ₍₈₎ (same as 007501) |
| 007521 | 21 ₍₈₎ (same as 007501) |
| 007522 | 22 ₍₈₎ (same as 007501) |
| 007523 | 23 ₍₈₎ (same as 007501) |
| 007524 | 24 ₍₈₎ (same as 007501) |
| 007525 | 25 ₍₈₎ (same as 007501) |
| 007526 | 26 ₍₈₎ (same as 007501) |
| 007527 | 27 ₍₈₎ (same as 007501) |
| 007530 | 30 ₍₈₎ (same as 007501) |
| 007531 | 31 ₍₈₎ (same as 007501) |
| 007532 | 32 ₍₈₎ (same as 007501) |
| 007533 | 33 ₍₈₎ (same as 007501) |
| 007534 | 34 ₍₈₎ (same as 007501) |
| 007535 | 35 ₍₈₎ (same as 007501) |
| 007536 | 36 ₍₈₎ (same as 007501) |
| 007537 | 37 ₍₈₎ (same as 007501) |

| Address ₍₈₎ | Set contents |
|------------------------|--|
| 007540 | Time out time of SEND/RECEIVE instruction of slave station 40 ₍₈₎ (Same as 007501) |
| 007541 | 41 ₍₈₎ (same as 007501) |
| 007542 | 42 ₍₈₎ (same as 007501) |
| 007543 | 43 ₍₈₎ (same as 007501) |
| 007544 | 44 ₍₈₎ (same as 007501) |
| 007545 | 45 ₍₈₎ (same as 007501) |
| 007546 | 46 ₍₈₎ (same as 007501) |
| 007547 | 47 ₍₈₎ (same as 007501) |
| 007550 | 50 ₍₈₎ (same as 007501) |
| 007551 | 51 ₍₈₎ (same as 007501) |
| 007552 | 52 ₍₈₎ (same as 007501) |
| 007553 | 53 ₍₈₎ (same as 007501) |
| 007554 | 54 ₍₈₎ (same as 007501) |
| 007555 | 55 ₍₈₎ (same as 007501) |
| 007556 | 56 ₍₈₎ (same as 007501) |
| 007557 | 57 ₍₈₎ (same as 007501) |
| 007560 | 60 ₍₈₎ (same as 007501) |
| 007561 | 61 ₍₈₎ (same as 007501) |
| 007562 | 62 ₍₈₎ (same as 007501) |
| 007563 | 63 ₍₈₎ (same as 007501) |
| 007564 | 64 ₍₈₎ (same as 007501) |
| 007565 | 65 ₍₈₎ (same as 007501) |
| 007566 | 66 ₍₈₎ (same as 007501) |
| 007567 | 67 ₍₈₎ (same as 007501) |
| 007570 | 70 ₍₈₎ (same as 007501) |
| 007571 | 71 ₍₈₎ (same as 007501) |
| 007572 | 72 ₍₈₎ (same as 007501) |
| 007573 | 73 ₍₈₎ (same as 007501) |
| 007574 | 74 ₍₈₎ (same as 007501) |
| 007575 | 75 ₍₈₎ (same as 007501) |
| 007576 | 76 ₍₈₎ (same as 007501) |
| 007577 | 77 ₍₈₎ (same as 007501) |

- Initial value of the address 007501 to 007577₍₈₎ are all 00_(H).

Set addresses 007601 to 007677⁽⁸⁾ when a JW model is used. The setting is not required when a ZW model is used. (6/7)

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | |
|------------------------|---|---------------------------------|--|
| 007601 | PC model of slave station 01 ⁽⁸⁾ | 00 ^(H) | PC is ZW model or JW model, ZW-20CM is without JW sign. |
| | | 80 ^(H) | |
| | | 81 ^(H) | PC is ZW model, ZW-20CM is with JW sign and JW-20CM. |
| | | 91 ^(H) | PC is JW model, ZW-20CM is with JW model and JW-20CM/JW-22CM |

| Address ⁽⁸⁾ | Set contents |
|------------------------|---|
| 007602 | PC model of slave station 02 ⁽⁸⁾ (Same as 007601) |
| 007603 | 03 ⁽⁸⁾ (same as 007601) |
| 007604 | 04 ⁽⁸⁾ (same as 007601) |
| 007605 | 05 ⁽⁸⁾ (same as 007601) |
| 007606 | 06 ⁽⁸⁾ (same as 007601) |
| 007607 | 07 ⁽⁸⁾ (same as 007601) |
| 007610 | 10 ⁽⁸⁾ (same as 007601) |
| 007611 | 11 ⁽⁸⁾ (same as 007601) |
| 007612 | 12 ⁽⁸⁾ (same as 007601) |
| 007613 | 13 ⁽⁸⁾ (same as 007601) |
| 007614 | 14 ⁽⁸⁾ (same as 007601) |
| 007615 | 15 ⁽⁸⁾ (same as 007601) |
| 007616 | 16 ⁽⁸⁾ (same as 007601) |
| 007617 | 17 ⁽⁸⁾ (same as 007601) |
| 007620 | 20 ⁽⁸⁾ (same as 007601) |
| 007621 | 21 ⁽⁸⁾ (same as 007601) |
| 007622 | 22 ⁽⁸⁾ (same as 007601) |
| 007623 | 23 ⁽⁸⁾ (same as 007601) |
| 007624 | 24 ⁽⁸⁾ (same as 007601) |
| 007625 | 25 ⁽⁸⁾ (same as 007601) |
| 007626 | 26 ⁽⁸⁾ (same as 007601) |
| 007627 | 27 ⁽⁸⁾ (same as 007601) |
| 007630 | 30 ⁽⁸⁾ (same as 007601) |
| 007631 | 31 ⁽⁸⁾ (same as 007601) |
| 007632 | 32 ⁽⁸⁾ (same as 007601) |
| 007633 | 33 ⁽⁸⁾ (same as 007601) |
| 007634 | 34 ⁽⁸⁾ (same as 007601) |
| 007635 | 35 ⁽⁸⁾ (same as 007601) |
| 007636 | 36 ⁽⁸⁾ (same as 007601) |
| 007637 | 37 ⁽⁸⁾ (same as 007601) |

| Address ⁽⁸⁾ | Set contents |
|------------------------|---|
| 007640 | PC model of slave station 40 ⁽⁸⁾ (Same as 007601) |
| 007641 | 41 ⁽⁸⁾ (same as 007601) |
| 007642 | 42 ⁽⁸⁾ (same as 007601) |
| 007643 | 43 ⁽⁸⁾ (same as 007601) |
| 007644 | 44 ⁽⁸⁾ (same as 007601) |
| 007645 | 45 ⁽⁸⁾ (same as 007601) |
| 007646 | 46 ⁽⁸⁾ (same as 007601) |
| 007647 | 47 ⁽⁸⁾ (same as 007601) |
| 007650 | 50 ⁽⁸⁾ (same as 007601) |
| 007651 | 51 ⁽⁸⁾ (same as 007601) |
| 007652 | 52 ⁽⁸⁾ (same as 007601) |
| 007653 | 53 ⁽⁸⁾ (same as 007601) |
| 007654 | 54 ⁽⁸⁾ (same as 007601) |
| 007655 | 55 ⁽⁸⁾ (same as 007601) |
| 007656 | 56 ⁽⁸⁾ (same as 007601) |
| 007657 | 57 ⁽⁸⁾ (same as 007601) |
| 007660 | 60 ⁽⁸⁾ (same as 007601) |
| 007661 | 61 ⁽⁸⁾ (same as 007601) |
| 007662 | 62 ⁽⁸⁾ (same as 007601) |
| 007663 | 63 ⁽⁸⁾ (same as 007601) |
| 007664 | 64 ⁽⁸⁾ (same as 007601) |
| 007665 | 65 ⁽⁸⁾ (same as 007601) |
| 007666 | 66 ⁽⁸⁾ (same as 007601) |
| 007667 | 67 ⁽⁸⁾ (same as 007601) |
| 007670 | 70 ⁽⁸⁾ (same as 007601) |
| 007671 | 71 ⁽⁸⁾ (same as 007601) |
| 007672 | 72 ⁽⁸⁾ (same as 007601) |
| 007673 | 73 ⁽⁸⁾ (same as 007601) |
| 007674 | 74 ⁽⁸⁾ (same as 007601) |
| 007675 | 75 ⁽⁸⁾ (same as 007601) |
| 007676 | 76 ⁽⁸⁾ (same as 007601) |
| 007677 | 77 ⁽⁸⁾ (same as 007601) |

- Initial value of the address 007601 to 007677⁽⁸⁾ are all 91^(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | | | | | | | | | |
|------------------------|---|---------------------------------|--|--|----------|----------|----------|----------|----------|----------|--|
| 007700 to 007703 | System of each channel in SEND/RECEIVE function <input type="checkbox"/> V5 | 007700 | CH0 | 00 ^(H) Instruction system 80 ^(H) Data memory start system | | | | | | | |
| | | 007701 | CH1 | 00 ^(H) Instruction system 81 ^(H) Data memory start system | | | | | | | |
| | | 007702 | CH2 | 00 ^(H) Instruction system | | | | | | | |
| | | | | 82 ^(H) Data memory start system | | | | | | | |
| | | 007703 | CH3 | 00 ^(H) Instruction system | | | | | | | |
| | | | | 83 ^(H) Data memory start system | | | | | | | |
| 007710 to 007713 | Top addresses in communication information storage area when using data memory starting system of SEND/RECEIVE functions <input type="checkbox"/> V5 | 007710 | (Octal, word) |) When 31100 to set to 001100 ⁽⁸⁾ (Set by file address) | | | | | | | |
| | | 007711 | | | | | | | | | |
| | | 007712 | (Hexadecimal, byte) |) When file number is 0, set to 00 ^(H) | | | | | | | |
| | | 007713 | This setting is valid by 80 ^(H) | | | | | | | | |
| 007750 to 007757 | Connection condition of slave station • Turn ON the corresponding bit of connected station number (01 to 77 ⁽⁸⁾) from the list at right. • 00 ⁽⁸⁾ of master station (0 bit of address 000750) At ON: Output error code At OFF: Do not output error code. | Bit address | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |) • When connecting slave station 00 to 04 ⁽⁸⁾ and output error code: (Address) (Bit pattern) 007750 — 00011111 007751 — 00000000 to 007757 — 00000000 |
| | | 007750 | 07 | 06 | 05 | 04 | 03 | 02 | 01 | 00 | |
| | | 007751 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | |
| | | 007752 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | |
| | | 007753 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | |
| | | 007754 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | |
| | | 007755 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | |
| | | 007756 | 67 | 66 | 65 | 64 | 63 | 62 | 61 | 60 | |
| 007757 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 | | | |
| 007763 | Whether the station number information should be output or not <input type="checkbox"/> V5 | 00 ^(H) | | Do not output | | | | | | | |
| | | 01 ^(H) | | Output | | | | | | | |
| 007764 to 007767 | Flag area top address on the master station | 007764 | (Octal, word) |) When 30200, set to 000200 ⁽⁸⁾ (Set by file address) | | | | | | | |
| | | 007765 | | | | | | | | | |
| | | 007766 | (Hexadecimal, byte) |) When file number is 2, set to 02 ^(H) | | | | | | | |
| | | 007767 | ● | 00 ^(H) : Do not output flag 80 ^(H) : Output flag | | | | | | | |
| 007771 | Communication error detection interval | (Decimal, bytes) | When 600 ms, set to 006 ^(D) | | | | | | | | |
| 007777 | Stop operation of the data link | 00 ^(H) | Set in 100 ms unit | | | | | | | | |
| | Start operation of the data link | 01 ^(H) | | | | | | | | | |
| | Writing to EEPROM or operation stop operation | 80 ^(H) | | | | | | | | | |
| | Writing to EEPROM or operation start operation | 81 ^(H) | | | | | | | | | |
| | Initialize parameter setting value | 08 ^(H) | | | | | | | | | |

- See page 9-33 for initial value of the addresses above.

③ Data link slave station

(1/2)

| Address ⁽⁸⁾ | Set contents | Setting method (value, example) | | | | | | |
|------------------------|--|---|---|---|--|---------------------|---|--|
| 007500 | Time out time of SEND/RECEIVE instruction of master station (0.1 to 25.5 sec.) | (Octal, byte) When 10 second, set to 100 ^(D) | | | | | | |
| 007501 to 007577 | Time out time of SEND/RECEIVE instruction of slave station 01 to 77 ⁽⁸⁾ (See page 13-13 same as data link master station) | | | | | | | |
| 007600 | PC model of master station | 00 ^(H) | PC is ZW model or JW model, ZW-20CM is without JW sign. | | | | | |
| | | 80 ^(H) | | | | | | |
| | | 81 ^(H) | PC is ZW model, ZW-20CM is with JW sign and JW-20CM. | | | | | |
| | | 91 ^(H) | PC is JW model, ZW-20CM is with JW sign and JW-20CM/JW-22CM | | | | | |
| 007601 to 007677 | PC model of slave station 01 to 77 ⁽⁸⁾ (See page 8-6 same as data link master station) | Same as 007600 | | | | | | |
| 007700 to 007703 | System of each channel in SEND/RECEIVE function <input type="checkbox"/> V5 | 007700 | CH0 | 00 ^(H) | Instruction system | | | |
| | | | 80 ^(H) | Data memory start system | | | | |
| | | 007701 | CH1 | 00 ^(H) | Instruction system | | | |
| | | | | 81 ^(H) | Data memory start system | | | |
| | | 007702 | CH2 | 00 ^(H) | Instruction system | | | |
| | | | | 82 ^(H) | Data memory start system | | | |
| | | 007703 | CH3 | 00 ^(H) | Instruction system | | | |
| | | | | 83 ^(H) | Data memory start system | | | |
| 007710 to 007713 | Top addresses in communication information storage area when using data memory starting system of SEND/RECEIVE functions <input type="checkbox"/> V5 | 007710 | (Octal, word) | | | | | |
| | | 007711 | | | | | | |
| | | 007712 | (Hexadecimal, byte) | | | | | |
| | | 007713 | This setting is valid by 80 ^(H) | | | | | |
| 007720 to 007721 | Number of receiving bytes of relay link in memory capacity save function <input type="checkbox"/> V5 | (Octal, byte) | Set 00008 ^(D) for 8 bytes | | | | | |
| 007722 to 007723 | Number of receiving bytes of register link in memory capacity save function <input type="checkbox"/> V5 | (Octal, byte) | Set 00064 ^(D) or 64 bytes | | | | | |
| 007730 to 007733 | Top address of relay link area in memory capacity save function <input type="checkbox"/> V5 | 007730 | (Octal, word) |) When 1200 set to 001200 ⁽⁸⁾ (Set by file address) | | | | |
| | | 007731 | | | | | | |
| | | 007732 | | | | 00 ^(H) | | |
| | | 007733 | | | | 00 ^(H) | | |
| 007734 to 007737 | Top address of register link area in memory capacity save function <input type="checkbox"/> V5 | 007734 | (Octal, word) |) When 0900 set to 004000 ⁽⁸⁾ (Set by file address) | | | | |
| | | 007735 | | | | | | |
| | | 007736 | | | | (Hexadecimal, byte) |) When file number is 0, set to 00 ^(H) | |
| | | 007737 | | | | 00 ^(H) | | |
| 007763 | Whether the station number information should be output or not <input type="checkbox"/> V5 | 00 ^(H) | Do not output | | | | | |
| | | 01 ^(H) | Output | | | | | |
| 007764 to 007767 | Top address of flag area on each slave station | 007764 | (Octal, word) |) When 10600, set to 000600 ⁽⁸⁾ (Set by file address) | | | | |
| | | 007765 | | | | | | |
| | | 007766 | | (Hexadecimal, byte) |) When file number is 2, set to 02 ^(H) □ 00 ^(H) : Do not output flag ● 80 ^(H) : Output flag | | | |
| | | 007767 | | ● | | | | |
| 007771 | Communication error detection interval | 00 ^(D) | 32 stations max.: 250 ms, 33 stations min.: 450 ms | | | | | |
| | | 001 to 255 ^(D) | Set in 100 ms unit | | | | | |
| 007777 | Stop operation of the data link | 00 ^(H) | _____ | | | | | |
| | Start operation of the data link | 01 ^(H) | | | | | | |
| | Writing to EEPROM or operation stop operation | 80 ^(H) | | | | | | |
| | Writing to EEPROM or operation start operation | 81 ^(H) | | | | | | |
| | Initialize parameter setting value | 08 ^(H) | | | | | | |

※ Set in case that slave station is JW-20CM only.

(2) JW-20RS

○ : Setting is necessary (1/2)

| Address ⁽⁸⁾ | Set contents | Setting method (value) | | JW-I/O | ZW-I/O |
|------------------------|---|------------------------|------------------------------------|--------|--------|
| 000000 | Set number of dummy I/O points Rack number: 0 D ₇ 6 5 4 3 2 1 0 <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 1</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 0</div> • Set vacant 2 slots • Set only in case of manual I/O table registration • For address 000000 ⁽⁸⁾ , set 00 ^(H) | 00 ^(H) | Dummy I/O points is none | ○ | — |
| | | 01 ^(H) | Dummy I/O points is 16 (2 bytes) | | |
| | | 02 ^(H) | Dummy I/O points is 32 (4 bytes) | | |
| | | 03 ^(H) | Dummy I/O points is 48 (6 bytes) | | |
| | | 04 ^(H) | Dummy I/O points is 64 (8 bytes) | | |
| | | 05 ^(H) | Dummy I/O points is 80 (10 bytes) | | |
| | | 06 ^(H) | Dummy I/O points is 96 (12 bytes) | | |
| | | 07 ^(H) | Dummy I/O points is 112 (14 bytes) | | |
| | | 08 ^(H) | Dummy I/O points is 128 (16 bytes) | | |
| | | 09 ^(H) | Dummy I/O points is 144 (18 bytes) | | |
| | | 0A ^(H) | Dummy I/O points is 160 (20 bytes) | | |
| | | 0B ^(H) | Dummy I/O points is 176 (22 bytes) | | |
| | | 0C ^(H) | Dummy I/O points is 192 (24 bytes) | | |
| | | 0D ^(H) | Dummy I/O points is 208 (26 bytes) | | |
| | | 0E ^(H) | Dummy I/O points is 224 (28 bytes) | | |
| | | 0F ^(H) | Dummy I/O points is 240 (30 bytes) | | |

- Use addresses 000001 to 000017⁽⁸⁾ listed below when the I/Os are the JW type.
If ZW type I/Os are used, no setting is required.

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 000001 | Set number of dummy I/O points Rack number: 0 D ₇ 6 5 4 3 2 1 0 <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 3</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 2</div> (Setting method is same as 000000 ⁽⁸⁾ .) |
| 000002 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 5</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 4</div> |
| 000003 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 7</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 6</div> |
| 000004 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 9</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 8</div> |
| 000005 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: B</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: A</div> |
| 000006 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: D</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: C</div> |
| 000007 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: F</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: E</div> |

| Address ⁽⁸⁾ | Set contents |
|------------------------|--|
| 000010 | Set number of dummy I/O points Rack number: 1 D ₇ 6 5 4 3 2 1 0 <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 1</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 0</div> (Setting method is same as 000000 ⁽⁸⁾ .) |
| 000011 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 3</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 2</div> |
| 000012 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 5</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 4</div> |
| 000013 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 7</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 6</div> |
| 000014 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 9</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: 8</div> |
| 000015 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: B</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: A</div> |
| 000016 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: D</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: C</div> |
| 000017 | <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: F</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Slot: E</div> |

- Initial value of the address 000000 to 000017⁽⁸⁾ are all 00^(H).

| Address ⁽⁸⁾ | Set contents | Setting method (value) | | JW-I/O | ZW-I/O |
|------------------------|---|------------------------|--|--------|--------|
| 000100 | Set kinds of I/O module Rack number: 0 Slot number: 0 • Set 1 slot • Set only in case of manual I/O registration • For address 000100 ⁽⁸⁾ , set 00 ^(H) | 91 ^(H) | 16 points output (JW-12S, JW-13S, JW-32S) | ○ | — |
| | | 92 ^(H) | 32 points output (JW-32SC, JW-33S, JW-34S, JW-35S) | | |
| | | 94 ^(H) | 64 points output (JW-62SC) | | |
| | | 00 ^(H) | Vacant slot 00 ↑ Lower bits are dummy I/O points | | |
| | | A1 ^(H) | 16 points output (JW-11N, JW-12N, JW-13N) | | |
| | | A2 ^(H) | 32 points output (JW-31N, JW-32N, JW-34N, JW-34NC) | | |
| | | A4 ^(H) | 64 points output (JW-64NC) | | |
| | | D1 ^(H) | Special I/O module (JW-2DA, JW-8AD, JW-31LM) | | |
| | | F1 ^(H) | Special I/O module (JW-2HC, JW-11DU/12DU) | | |

- Use addresses 000101 to 000137⁽⁸⁾ listed below when the I/Os are the JW type, and the register module type and number of dummy I/O points can be set using the arbitrary I/O registration mode. If ZW type I/Os are used, no setting is required.

| Address ⁽⁸⁾ | Set contents |
|------------------------|---|
| 000101 | Set kinds of I/O module Rack number: 0 Slot number: 1 • For address 000100 ⁽⁸⁾ , set 00 ^(H) (Setting method is same as 000100) [※] |
| 000102 | Rack number: 0, Slot number: 2 [※] |
| 000103 | Rack number: 0, Slot number: 3 [※] |
| 000104 | Rack number: 0, Slot number: 4 [※] |
| 000105 | Rack number: 0, Slot number: 5 [※] |
| 000106 | Rack number: 0, Slot number: 6 [※] |
| 000107 | Rack number: 0, Slot number: 7 [※] |
| 000110 | Rack number: 0, Slot number: 8 [※] |
| 000111 | Rack number: 0, Slot number: 9 [※] |
| 000112 | Rack number: 0, Slot number: A [※] |
| 000113 | Rack number: 0, Slot number: B [※] |
| 000114 | Rack number: 0, Slot number: C [※] |
| 000115 | Rack number: 0, Slot number: D [※] |
| 000116 | Rack number: 0, Slot number: E [※] |
| 000117 | Rack number: 0, Slot number: F [※] |

| Address ⁽⁸⁾ | Set contents |
|------------------------|---|
| 000120 | Set kinds of I/O module Rack number: 0 Slot number: 1 • For address 000100 ⁽⁸⁾ , set 00 ^(H) (Setting method is same as 000100) [※] |
| 000121 | Rack number: 0, Slot number: 1 [※] |
| 000122 | Rack number: 0, Slot number: 2 [※] |
| 000123 | Rack number: 0, Slot number: 3 [※] |
| 000124 | Rack number: 0, Slot number: 4 [※] |
| 000125 | Rack number: 0, Slot number: 5 [※] |
| 000126 | Rack number: 0, Slot number: 6 [※] |
| 000137 | Rack number: 0, Slot number: 7 [※] |
| 000130 | Rack number: 0, Slot number: 8 [※] |
| 000131 | Rack number: 0, Slot number: 9 [※] |
| 000132 | Rack number: 0, Slot number: A [※] |
| 000133 | Rack number: 0, Slot number: B [※] |
| 000134 | Rack number: 0, Slot number: C [※] |
| 000135 | Rack number: 0, Slot number: D [※] |
| 000136 | Rack number: 0, Slot number: E [※] |
| 000137 | Rack number: 0, Slot number: F [※] |

- Initial value of the address 000100 to 000137⁽⁸⁾ are all 00^(H).

| Address(8) | Set contents | Setting method (value, example) | | JW-I/O | ZW-I/O |
|------------|---|---------------------------------|--|--------|--------|
| 000100 | Max. rack, slot number | Upper 4 bits: rack number | D7 6 5 4 3 2 1 0 Slot: 1 Slot: 0 | | |
| | | Lower 4 bits: rack number | | | |
| 000100 | Normal I/O table registration | 60(H) | Both the number of dummy IO points, and the type of I/O modules can be set arbitrarily. | ○ | — |
| | | 64(H) | Set the number of dummy I/O points arbitrarily, and set the type of I/O modules automatically. | | |
| | | 65(H) | Set the number of dummy I/O points arbitrarily, and set the type of I/O modules automatically. | | |
| | | 00(H) | This normally ends the setting procedure. | | |
| 001002 | Auto I/O table registration when power lights ON | 00(H) | Auto registration | | |
| | | 03(H) | Prohibit auto registration | | |
| 001004 | Remote I/O top address | (Octal, word) | When 10200, set to 000200(8) by file address | | |
| 001005 | | | | | |
| 003750 | Check No. of I/O bytes | 00(H) | No check | — | ○ |
| | | 45(H) | Check | | |
| 003752 | No. of I/O bytes (0 to 128 bytes) • When 003750 is set to "00(H): Do not check," these addresses do not have to be set. | (Decimal, word) | When 100 bytes, set to 00100(D) | | |
| 003753 | | | | | |
| 003777 | Stop operation of the remote I/O | 00(H) | — | ○ | ○ |
| | Stop operation of the remote I/O | 01(H) | | | |
| | Writing to EEPROM or operation of the module/stop operation | 80(H) | | | |
| | Writing to EEPROM or operation of the module/stop operation | 81(H) | | | |
| | Initialize parameter setting value | 08(H) | | | |


- Set page 8-19 for initial values of the addresses above.

13-4 Address map of data memory

(File 0)

| | Memory address | | | Setting range | |
|---------------------------|---|--|--|--|--|
| | Bit address ⁽⁸⁾ 1 address = 1 points | Byte address ⁽⁸⁾ 1 address = 8 points | File address ⁽⁸⁾ 1 address = 8 points | W70H W100H | JW50/70/100 JW50H/70H/100H |
| I/O relay | 00000 to 03777 | 00000 to 03777 | 000000 to 000377 | Relay link area Register link area Flag area | Relay link area Register link area Flag area |
| Auxiliary relay | 04000 to 06777 | 00400 to 00677 | 000400 to 000677 | | |
| Latched relay | 07000 to 07777 | 00700 to 00777 | 000700 to 000777 | | |
| General purpose relay | 10000 to 15777 | 01000 to 01577 | 001000 to 001577 | | |
| TMR/CNT contact | T· C000 to T· C777 | | 001600 to 001777 | | |
| TMR/CNT/-MD current value | | b1000 to b1777 | 002000 to 003777 | | |
| Register | | 09000 to 09777 | 004000 to 004777 | | |
| Register | | 19000 to 19777 | 005000 to 005777 | | |
| Register | | 29000 to 29777 | 006000 to 006777 | | |
| Register | | 39000 to 39777 | 007000 to 007777 | | |
| Register | | 49000 to 49777 | 010000 to 010777 | | |
| Register | | 59000 to 59777 | 011000 to 011777 | | |
| Register | | 69000 to 69777 | 012000 to 012777 | | |
| Register | | 79000 to 79777 | 013000 to 013777 | | |
| Register | | 89000 to 89777 | 014000 to 014777 | | |
| Register | | 99000 to 99777 | 015000 to 015777 | | |

13

| | Memory address | | | Setting range | |
|-----------------|---|--|--|--|-------------------------------------|
| | Bit address ⁽⁸⁾ 1 address = 1 points | Byte address ⁽⁸⁾ 1 address = 8 points | File address ⁽⁸⁾ 1 address = 8 points | W70H W100H | JW50/70/100 JW50H/70H/100H |
| File 1 Register | | | 000000 to 177777 |  | Register link area Flag area |
| File 2 Register | | | 000000 to 177777 | | |
| File 3 Register | | | 000000 to 177777 | | |
| File 4 Register | | | 000000 to 177777 | | |
| File 5 Register | | | 000000 to 177777 | | |
| File 6 Register | | | 000000 to 177777 | | |
| File 7 Register | | | 000000 to 177777 | | |

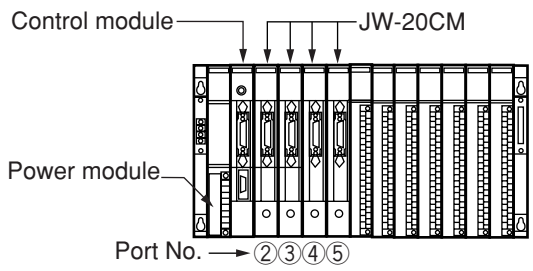
- Addresses 07300 to 07377⁽⁸⁾ and addresses 15760 to 15767⁽⁸⁾ (bit address) are special relay areas. Do not use them as a data link area.
- The addresses that can be used vary with the PC model and capacity. For details, see the instruction manual for reach model.
- The usable file numbers will vary with the memory module that is installed on the PC.

| Name of memory module | Usable file numbers |
|-----------------------|------------------------|
| ZW-1MA, JW-1MAH | 0 or 1※ |
| ZW-2MA, JW-2MAH | 0 or 1 |
| ZW-3MA, JW-3MAH | 0, 1, 2 |
| ZW-4MA, JW-4MAH | 0, 2, 2, 3, 4, 5, 6, 7 |

※ If file number is 1, file address shall be within 000000 to 037777⁽⁸⁾.

13-5 Instructions used with the F200 and F201 link function

(1) F-200

| F-200 → PORT | Write to a port [※ 1] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|--------------------------------|--------------------------|--------------------------------|---|----------|----------|-------------|-----|-----|-------------|--|-----|--|-----|-----------------------------|---|-----|--|-----|----------------------------------|--|---|--|-----|--------------------|----------|---|--|-----|--------------------|---|--|-----|-----------|--|---|--|---------------------|------------|--|---|--|---------------------|--|---|----|
| Symbol | <div style="display: inline-block; border: 1px solid black; padding: 2px;"> — F-200 →POR TASKn @ S PORTn </div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Function | Transfer task number "n" and PC memory data (set the top address using @S) to a ZW/JW-20CM at port "n." | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operation contents | <p>Contents of @S (Set S to S+6 using the PC)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center;">S</td> <td style="width: 50%;">File address (lower bit)</td> <td rowspan="2" style="width: 10%; text-align: center;">Top address for sending data →</td> <td rowspan="2" style="width: 10%; text-align: center;">n</td> <td rowspan="2" style="width: 10%; text-align: center;">Resister</td> </tr> <tr> <td style="text-align: center;">S+1</td> <td style="text-align: center;">(upper bit)</td> <td style="text-align: center;">n+1</td> </tr> <tr> <td style="text-align: center;">S+2</td> <td>File number</td> <td></td> <td style="text-align: center;">n+2</td> <td></td> </tr> <tr> <td style="text-align: center;">S+3</td> <td>Number of bytes transferred</td> <td style="text-align: center;">→</td> <td style="text-align: center;">n+3</td> <td></td> </tr> <tr> <td style="text-align: center;">S+4</td> <td>Receive station's station number</td> <td></td> <td style="text-align: center;">⋮</td> <td></td> </tr> <tr> <td style="text-align: center;">S+5</td> <td>000₍₈₎</td> <td rowspan="2" style="text-align: center;">Reserved</td> <td style="text-align: center;">⋮</td> <td></td> </tr> <tr> <td style="text-align: center;">S+6</td> <td>000₍₈₎</td> <td style="text-align: center;">⋮</td> <td></td> </tr> <tr> <td style="text-align: center;">S+7</td> <td>Not fixed</td> <td></td> <td style="text-align: center;">⋮</td> <td></td> </tr> <tr> <td style="text-align: center;">S+10₍₈₎</td> <td rowspan="2" style="text-align: center;">(reserved)</td> <td></td> <td style="text-align: center;">⋮</td> <td></td> </tr> <tr> <td style="text-align: center;">S+11₍₈₎</td> <td></td> <td style="text-align: center;">⋮</td> <td style="text-align: center;">n+</td> </tr> </table> <p>S to S+2: Set the top address for sending data using the file number and file address.</p> <p>S+3: Number of data bytes to transfer from the PC to JW-20CM. Set to 000 to 255_(D). (000_(D) equals 256 bytes.)</p> <p>S+4: Station number at which data is received. Set 000 to 077₍₈₎ using octal notation.</p> <p>S+5, S+6: Reserved area. Set 000₍₈₎.</p> <p>S+7 to S+11₍₈₎: Reserved area. Status from a port (not fixed).</p> | S | File address (lower bit) | Top address for sending data → | n | Resister | S+1 | (upper bit) | n+1 | S+2 | File number | | n+2 | | S+3 | Number of bytes transferred | → | n+3 | | S+4 | Receive station's station number | | ⋮ | | S+5 | 000 ₍₈₎ | Reserved | ⋮ | | S+6 | 000 ₍₈₎ | ⋮ | | S+7 | Not fixed | | ⋮ | | S+10 ₍₈₎ | (reserved) | | ⋮ | | S+11 ₍₈₎ | | ⋮ | n+ |
| S | File address (lower bit) | Top address for sending data → | n | | | | Resister | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S+1 | (upper bit) | | | n+1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S+2 | File number | | n+2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S+3 | Number of bytes transferred | → | n+3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S+4 | Receive station's station number | | ⋮ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S+5 | 000 ₍₈₎ | Reserved | ⋮ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S+6 | 000 ₍₈₎ | | ⋮ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S+7 | Not fixed | | ⋮ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S+10 ₍₈₎ | (reserved) | | ⋮ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S+11 ₍₈₎ | | | ⋮ | n+ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Setting range for TASK "n" | Set to TASK 0. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Setting range for PORT "n" | <p>Set a port number for the PC basic rack panel on which the ZW/JW-20CM is installed. (Ex.: JW-13BU)</p>  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

13

| | | | | | | |
|-----------------------|--|--|--|----------------|---------------|--|
| Setting range for "S" | PC model name | W701H/100H | JW50/70/100, JW50H/70H/100H | | | |
| | Setting range [※ 2] | 30000 to 31566 b0000 to b1766 09000 to 09766 19000 to 19766 | 30000 to 31566 b0000 to b1766 09000 to 09766 99000 to 99766 E0000 to E1766 | | | |
| Operation conditions | · Rising edge of the input signal (OFF to ON) [※ 3] · S+3 to S+11 are transferred regardless of the input signal condition. | | | | | |
| Flag | Contents | Non-carry 07354 | Error 07355 | Carry 07356 | Zero 07357 | |
| | No ZW/JW-20CM on the option board | 0 | 1 | 0 | 0 | |
| | Waiting for a data transfer to a ZW/ JW-20CM on the option board | 1 | 0 | 0 | 0 | |
| | Completed a data transfer to a ZW/ JW-20CM on the option board | 0 | 0 | 1 | 0 | |
| | None of the above. | 0 | 0 | 0 | 0 | |

[※ 1] The description for this instruction is for the ZW/JW-20CM only. It is different from the contents in the PC programming manual. The F-200 instruction can only be used for one ZW/JW-20CM module.

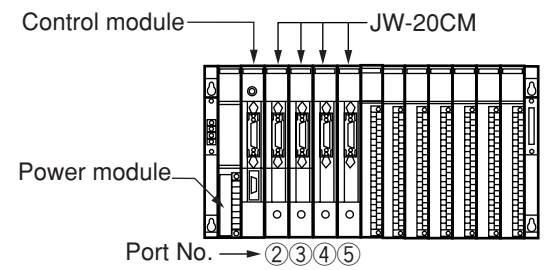
[※ 2] Use 30730 to 30737 for special relays.

[※ 3] When the F-200 instruction is turned ON, the non carry (07354) will be kept ON until the data transfer to the number 2 port memory is complete. If the F-200 instruction is turned ON while the non carry is ON, the data following this instruction will be invalid.

Note: The F-200 instruction will not receive a response from the opposite station. Use the data link information for the response. Or, create a system for the data receive station to respond to the reception of the F-200 instruction.

**F-201
PORT →**

Read from a port

| | |
|-----------------------------------|---|
| <p>Symbol</p> | <p style="text-align: center;"> F-201 POR→ TASKn PORTn @ D </p> |
| <p>Function</p> | <p>Transfer task number "n" and PC memory data (set the top address using @S) to a ZW/JW-20CM at port "n."</p> |
| <p>Operation contents</p> | <p>Contents of @S (Set S to S+6 using the PC)</p> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;"> <p>D File address (lower bit)</p> <p>D+1 (upper bit)</p> <p>D+2 File number</p> <p>D+3 Number of bytes transferred</p> <p>D+4 000₍₈₎</p> <p>D+5 000₍₈₎ Reserved</p> <p>D+6 000₍₈₎</p> <p>D+7 Receive station's station number</p> <p>D+10₍₈₎ Completed receiving flag</p> <p>D+11₍₈₎ Reserved (not fixed)</p> </div> <div> <p style="text-align: center;">Top address for sending data</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="text-align: center;">Resister</p> <p style="text-align: center;">n</p> <p style="text-align: center;">n+1</p> <p style="text-align: center;">n+2</p> <p style="text-align: center;">n+3</p> </div> <p style="text-align: center;">7 6 5 4 3 2 1 0</p> <div style="border: 1px solid black; padding: 2px; width: 100px; margin: 0 auto; text-align: center;"> <p>Not fixed</p> </div> </div> </div> <p>D to D+2: Set the top address for sending data using the file number and file address.</p> <p>D+3: Number of data bytes to transfer from the PC to JW-20CM. Set to 000 to 255_(D). (000_(D) equals 256 bytes.)</p> <p>D+4 to D+6: Reserved area. Set 000₍₈₎.</p> <p>D+7: Station number at which data is sent. Set from ZW/JW-20CM</p> <p>D+10₍₈₎: Station number at which data is sent. Set from ZW/JW-20CM</p> <div style="text-align: center; margin: 20px 0;"> <p>7 6 5 4 3 2 1 0</p> <div style="border: 1px solid black; padding: 2px; width: 100px; margin: 0 auto; text-align: center;"> <p>Flag</p> </div> </div> <p>D+11₍₈₎: Reserved area. Status from a port (not fixed). M</p> |
| <p>Setting range for TASK "n"</p> | <p>Set to TASK 1.</p> |
| <p>Setting range for PORT "n"</p> | <p>Set a port number for the PC basic rack panel on which the ZW/JW-20CM is installed. (Ex.: JW-13BU)</p> <div style="text-align: center;">  </div> |

| | | | | | | |
|-----------------------|---|--|--|----------------|---------------|--|
| Setting range for "S" | PC model name | W70H/100H | JW50/70/100, JW50H/70H/100H | | | |
| | Setting range [※ 2] | 30000 to 31566 b0000 to b1766 09000 to 09766 19000 to 19766 | 30000 to 31566 b0000 to b1766 09000 to 09766 29000 to E1766 | | | |
| Operation conditions | · Rising edge of the input signal (OFF to ON) [※ 3] | | | | | |
| Flag [※4] | Contents | Non-carry 07354 | Error 07355 | Carry 07356 | Zero 07357 | |
| | No ZW/JW-20CM on the option board | 0 | 1 | 0 | 0 | |
| | Waiting for a data transfer from a ZW/ JW-20CM | 1 | 0 | 0 | 0 | |
| | Completed a data transfer from a ZW/ JW-20CM | 0 | 0 | 1 | 0 | |
| | None of the above. | 0 | 0 | 0 | 0 | |

[※ 1] The description for this instruction is for the ZW/JW-20CM only. It is different from the contents in the PC programming manual. The F-201 instruction can only be used for one ZW/JW-20CM module.

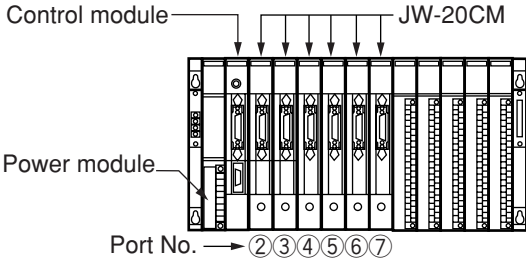
[※ 2] Use 30732 to 30737 for special relays.

[※ 3] When the F-200 instruction is turned ON, the non carry (07354) will be kept ON until the data transfer to the number 2 port memory is complete. Even if the JW-20CM receives data from an other station using the F-200 instruction, it will remain inside the ZW/JW-20CM until the F-201 input signal changes ON from OFF, and the following data sent by the F-200 instruction will not be received. If the PC power is turned OFF, the data currently being received will be turned OFF.

[※ 4] If the JW-20CM receives data using a continuous stream of F-200 instruction, the receive completion flag D+10₍₈₎ may not turn OFF. In this case use both the receive completion flag and the carry (07356) when programming.

13-6 Application instruction using instruction system

(1) F-202

| | | | | | | | | |
|-----------------------|---|--------|---|--|---------------|---------------|--------|---|
| F-202 OPCH | Open Channel | | | | | | | |
| Symbol | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">F-202 OPCH</td> <td style="text-align: center;">PORT CH·ST</td> <td style="text-align: center;">file N</td> <td style="text-align: center;">n</td> </tr> </table> | | | | F-202 OPCH | PORT CH·ST | file N | n |
| F-202 OPCH | PORT CH·ST | file N | n | | | | | |
| Function | Specify the target station for inter-PC data communications to be performed across the satellite net (ZW/JW-20CM). These instructions are used in conjunction with the F-204 (SEND) or F-205 (RCV) instructions. | | | | | | | |
| Range of PORT | Input the port number of rack panel that installed on ZW/JW-20CM. Example: JW-13BU <div style="display: flex; align-items: center; justify-content: center; margin-top: 10px;"> <div style="margin-right: 10px;">Control module</div>  <div style="margin-left: 10px;">JW-20CM</div> </div> | | | | | | | |
| Range of CH | 0 to 3 : Channel number for the specified port number. Available for use four times by classifying the same port numbers into CH0, CH1, CH2, and CH3 in the PC program. | | | | | | | |
| Range of ST | 00 to 77 ₍₈₎ : Communication target station number. Set by octal. | | | | | | | |
| Range of file N | 0 to 7 : Specify the PC data area (file number) of the communication target station. [※] | | | | | | | |
| Range of n | 000000 to 177777 ₍₈₎ : Specify the PC data top address (file address) of the communication target station. [※] | | | | | | | |
| Condition | When an input signal is ON, keep it ON until the flag is changed. | | | | | | | |
| Flag | Refer to F-204 and F-205 for the combination of F-204 and F-205. [※] | | | | | | | |

- After turning ON the input signal of F-202, keep it ON until the finish of the execution of the instruction. If the input signal is turned OFF during execution of the instruction, the instruction ends in an incomplete condition. Under this condition, next, when an F-202 instruction is given, it will come to a “communication jam,” and the instruction will not be executed. Turn the power OFF and then ON again for recovery.

[※] F-202 instructions must always be used in conjunction with the F-204 (SEND) or F-205 (RCV) instruction.

(2) F-204

| F-204 SEND | | Send Data | | | | | | | | | | | | | | | | | | | | | |
|-----------------|--|---|---------------|----------------|----------------|--------------------|----|-----------------|----------------|----|-----------------|----------------|----|-----------------|---|---|---|----------------|----|-----------------|----------------|----|----------|
| Symbol | <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">F-204</td> <td style="padding: 2px;">n</td> <td style="padding: 2px;">s</td> </tr> <tr> <td style="padding: 2px;">SEND</td> <td></td> <td></td> </tr> </table> | | | | | F-204 | n | s | SEND | | | | | | | | | | | | | | |
| F-204 | n | s | | | | | | | | | | | | | | | | | | | | | |
| SEND | | | | | | | | | | | | | | | | | | | | | | | |
| Function | Specify the first address and byte count of the send data for transmission across the satellite net. | | | | | | | | | | | | | | | | | | | | | | |
| Operation | S to S + n - 1 → Specified station | | | | | | | | | | | | | | | | | | | | | | |
| Range of n | 000 to 377 ₍₈₎ (256 bytes for 000 ₍₈₎) | | | | | | | | | | | | | | | | | | | | | | |
| Range of S [*1] | <table style="font-family: monospace; border-collapse: collapse;"> <tr> <td style="padding: 2px;">]0000 to]1577</td> <td style="padding: 2px;">:@</td> <td style="padding: 2px;">]0000 to @]1574</td> </tr> <tr> <td style="padding: 2px;">b0000 to b1777</td> <td style="padding: 2px;">:@</td> <td style="padding: 2px;">b0000 to @b1774</td> </tr> <tr> <td style="padding: 2px;">09000 to 09777</td> <td style="padding: 2px;">:@</td> <td style="padding: 2px;">09000 to @09774</td> </tr> <tr> <td style="padding: 2px;">:</td> <td style="padding: 2px;">:</td> <td style="padding: 2px;">:</td> </tr> <tr> <td style="padding: 2px;">99000 to 99777</td> <td style="padding: 2px;">:@</td> <td style="padding: 2px;">99000 to @99774</td> </tr> <tr> <td style="padding: 2px;">E0000 to E1777</td> <td style="padding: 2px;">:@</td> <td style="padding: 2px;">E0000 to</td> </tr> </table> | | | | |]0000 to]1577 | :@ |]0000 to @]1574 | b0000 to b1777 | :@ | b0000 to @b1774 | 09000 to 09777 | :@ | 09000 to @09774 | : | : | : | 99000 to 99777 | :@ | 99000 to @99774 | E0000 to E1777 | :@ | E0000 to |
|]0000 to]1577 | :@ |]0000 to @]1574 | | | | | | | | | | | | | | | | | | | | | |
| b0000 to b1777 | :@ | b0000 to @b1774 | | | | | | | | | | | | | | | | | | | | | |
| 09000 to 09777 | :@ | 09000 to @09774 | | | | | | | | | | | | | | | | | | | | | |
| : | : | : | | | | | | | | | | | | | | | | | | | | | |
| 99000 to 99777 | :@ | 99000 to @99774 | | | | | | | | | | | | | | | | | | | | | |
| E0000 to E1777 | :@ | E0000 to | | | | | | | | | | | | | | | | | | | | | |
| Condition | When input signal is ON. | | | | | | | | | | | | | | | | | | | | | | |
| After operation | Contents of S | Unchanged | | | | | | | | | | | | | | | | | | | | | |
| | | Communication contents | Zero 07357 | Carry 07356 | Error 07355 | Non-carry 07354 | | | | | | | | | | | | | | | | | |
| | Flag | No response from port [*2] | 0 | 0 | 1 | 0 | | | | | | | | | | | | | | | | | |
| | | Communication jam [*3] | 0 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | |
| | | Communication busy (waiting for response from target station) | 1 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | |
| | | Normal end | 0 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | |
| | | Abnormal end [*4] (communication error) | 0 | 1 | 1 | 0 | | | | | | | | | | | | | | | | | |
| | | Remote station write protected | 1 | 1 | 1 | 0 | | | | | | | | | | | | | | | | | |

[Explanation]

- Even addresses must always be used for indirect addressing (@]0001, @b0173, etc. are prohibited).
- For details of indirect addressing, see PC's programming manual.
- F-204 instruction must always be used in conjunction with the F-202 (OPCH) instruction.
- After turning ON the input signal of F-204, keep it ON until the finish of the execution of the instruction. If the input signal is turned OFF during execution of the instruction, the instruction ends in an incomplete condition. Under this condition, next, when an F-204 instruction is given, it will come to a "communication jam," and the instruction will not be executed. Turn the power OFF and then ON again for recovery.

[*1] Setting range of "S" is for JW model PCs. For ZW model PCs, setting range is]0000 to 19777.

[*2] In case that the network module of the assigned module number is not installed.

[*3] In case that the channel is used with the other SEND/RECEIVE instruction. This instruction is executed after end of execution of the previously given instruction, and flag sign is changed into "communication busy" from "communication jam."

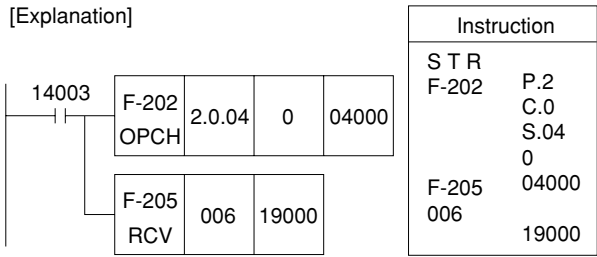
[*4] In case that response from the target station does not come within the time-out time.

(3) F-205

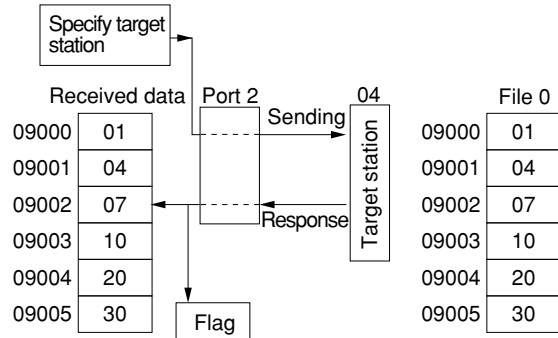
**F-205
RCV**

Receive Data

| Symbol | <table border="1"> <tr> <td>F-205 RCV</td> <td>n</td> <td>D</td> </tr> </table> | | | | F-205 RCV | n | D | [Explanation] | <table border="1"> <tr> <th colspan="2">Instruction</th> </tr> <tr> <td>STR</td> <td></td> </tr> <tr> <td>F-202</td> <td>P.2</td> </tr> <tr> <td></td> <td>C.0</td> </tr> <tr> <td></td> <td>S.04</td> </tr> <tr> <td></td> <td>0</td> </tr> <tr> <td>F-205</td> <td>04000</td> </tr> <tr> <td>006</td> <td>19000</td> </tr> </table> | Instruction | | STR | | F-202 | P.2 | | C.0 | | S.04 | | 0 | F-205 | 04000 | 006 | 19000 |
|-----------------|---|------------------|----------------|----------------|--------------------|---|------------------|----------------|---|------------------|----------------|-----|------------------|-------|-----|---|----------------|---|------------------|----------------|---|------------------|-------|-----|-------|
| F-205 RCV | n | D | | | | | | | | | | | | | | | | | | | | | | | |
| Instruction | | | | | | | | | | | | | | | | | | | | | | | | | |
| STR | | | | | | | | | | | | | | | | | | | | | | | | | |
| F-202 | P.2 | | | | | | | | | | | | | | | | | | | | | | | | |
| | C.0 | | | | | | | | | | | | | | | | | | | | | | | | |
| | S.04 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| F-205 | 04000 | | | | | | | | | | | | | | | | | | | | | | | | |
| 006 | 19000 | | | | | | | | | | | | | | | | | | | | | | | | |
| Function | Specify the first address and byte count of the receive data for transmission across satellite net. | | | | | | | | | | | | | | | | | | | | | | | | |
| Operation | Specified station → D to D + n - 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Range of n | 000 to 377 ⁽⁸⁾ (256 bytes for 000 ⁽⁸⁾) | | | | | | | | | | | | | | | | | | | | | | | | |
| Range of D [*1] | <table border="0"> <tr> <td>J0000 to J1577</td> <td>:</td> <td>@J0000 to @J1574</td> </tr> <tr> <td>b0000 to b1777</td> <td>:</td> <td>@b0000 to @b1774</td> </tr> <tr> <td>09000 to 09777</td> <td>:</td> <td>@09000 to @09774</td> </tr> <tr> <td>:</td> <td>:</td> <td>:</td> </tr> <tr> <td>99000 to 99777</td> <td>:</td> <td>@99000 to @99774</td> </tr> <tr> <td>E0000 to E1777</td> <td>:</td> <td>@E0000 to @E1774</td> </tr> </table> | | | | J0000 to J1577 | : | @J0000 to @J1574 | b0000 to b1777 | : | @b0000 to @b1774 | 09000 to 09777 | : | @09000 to @09774 | : | : | : | 99000 to 99777 | : | @99000 to @99774 | E0000 to E1777 | : | @E0000 to @E1774 | | | |
| J0000 to J1577 | : | @J0000 to @J1574 | | | | | | | | | | | | | | | | | | | | | | | |
| b0000 to b1777 | : | @b0000 to @b1774 | | | | | | | | | | | | | | | | | | | | | | | |
| 09000 to 09777 | : | @09000 to @09774 | | | | | | | | | | | | | | | | | | | | | | | |
| : | : | : | | | | | | | | | | | | | | | | | | | | | | | |
| 99000 to 99777 | : | @99000 to @99774 | | | | | | | | | | | | | | | | | | | | | | | |
| E0000 to E1777 | : | @E0000 to @E1774 | | | | | | | | | | | | | | | | | | | | | | | |
| Condition | When input signal is ON. | | | | | | | | | | | | | | | | | | | | | | | | |
| After operation | Contents of D | Unchanged | | | | | | | | | | | | | | | | | | | | | | | |
| | Communication contents | Zero 07357 | Carry 07356 | Error 07355 | Non-carry 07354 | | | | | | | | | | | | | | | | | | | | |
| | No response from module [*2] | 0 | 0 | 1 | 0 | | | | | | | | | | | | | | | | | | | | |
| | Communication jam [*3] | 0 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | |
| | Communication busy (waiting for response from target station) | 1 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | |
| | Normal end | 0 | 1 | 0 | 0 | | | | | | | | | | | | | | | | | | | | |
| | Abnormal end [*4] (communication error) | 0 | 1 | 1 | 0 | | | | | | | | | | | | | | | | | | | | |



When the input condition of 14003 changes from OFF to ON, this instruction reads 6 bytes of data from file 0's file area beginning with file address 04000 on satellite net station 04, via CH0 of port No. 2. The data read is stored to registers 19000 to 19005.



- Even addresses must always be used for indirect addressing (@J0001, @b0173, etc. are prohibited).
- For details of indirect addressing, see PC's programming manual.
- F-205 instruction must always be used in conjunction with the F-202 (OPCH) instruction.
- After turning ON the input signal of F-205, keep it ON until the finish of the execution of the instruction. If the input signal is turned OFF during execution of the instruction, the instruction ends in an incomplete condition. Under this condition, next, when an F-205 instruction is given, it will come to a "communication jam," and the instruction will not be executed. Turn the power OFF and then ON again for recovery.

[*1] Setting range of "S" is for JW model PCs. For ZW model PCs, setting range is J0000 to 19777.
 [*2] In case that the network module of the assigned module number is not installed.
 [*3] In case that the channel is used with the other SEND/RECEIVE instruction.
 This instruction is executed after end of execution of the previously given instruction, and flag sign is changed into "communication busy" from "communication jam."
 [*4] In case that response from target station does not come within the time-out time.

[Example 2] In case of reading data of 8 bytes to slave station 01⁽⁸⁾

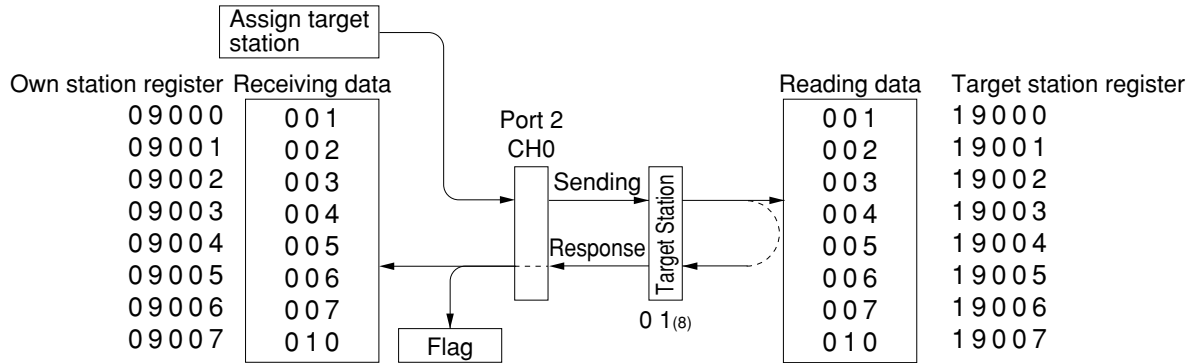
Module number installing own station JW-20CM : 2

Channel number using own station JW-20CM : 0

Data area of slave station 01⁽⁸⁾ : 0 (file number)

Send top address of slave station 01⁽⁸⁾ : Register 19000 (file address 05000⁽⁸⁾)

Receive data top address of own station : 09000



■ PC program

